

MACHINE SERVICE BULLETIN #108

SUBJECT: Adjustments of KASC Model

DATE: November 3, 1930

TO ALL OFFICES:

We are releasing herewith a set of prints, together with a parts and assembly list, which illustrate and describe the mechanism of the KASC Model machine.

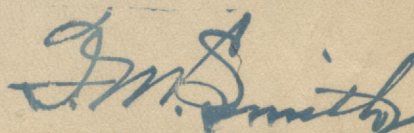
The information contained herein, together with those previous Bulletins issued on the various K Models, places in your hands complete details concerning the proper servicing of the KASC Model.

IMPORTANT

It is most important and vitally necessary before any attempt is made to assemble or adjust machines of this model, that the information contained in this Bulletin be thoroughly analyzed and understood. The machines must be assembled and adjusted exactly as we have outlined, in order to obtain satisfactory results.

Therefore, under no circumstances should any serviceman attempt or be permitted to handle these machines in any manner unless he is absolutely certain that he thoroughly understands the mechanism. In most cases this Bulletin will reach the District Office before the receipt of a machine of this Model; therefore, the District Manager should see that it is immediately placed into the hands of the Service Department, so that no time will be lost in absorbing its contents, and the Service Department will be in a position to set up the machines when they arrive, and check the adjustments where necessary.

Each District receiving this Bulletin is held responsible for it and we request its acknowledgment on the enclosed receipt card, which is to be returned to this office without delay.



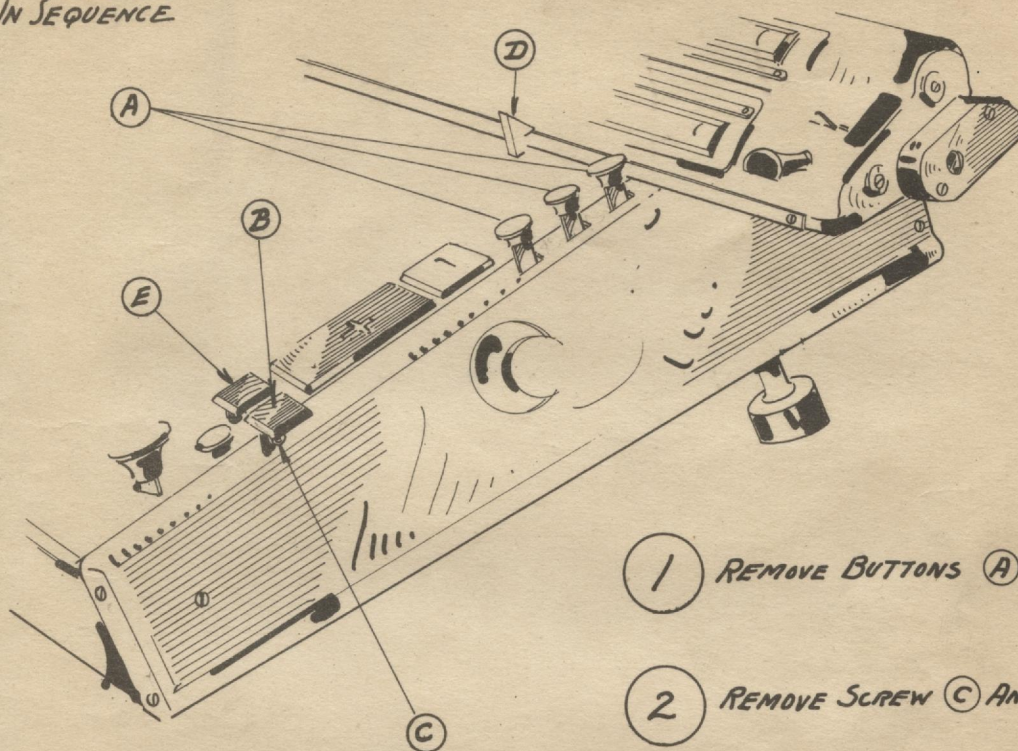
General Service Manager

FMS:W
Enclosure

PLATE I

NOTES ON DISMANTLING, ADJUSTING AND REASSEMBLING OF THE AUTOMATIC CARRIAGE SHIFT AND CARRIAGE CLEAR OUT MECHANISM ON KASC MODEL

NUMBERS IN CIRCLES DENOTE OPERATION NO'S. 1 AND OPERATIONS SHOULD BE PERFORMED IN SEQUENCE



1 REMOVE BUTTONS (A) (USE KIT TOOL #43)

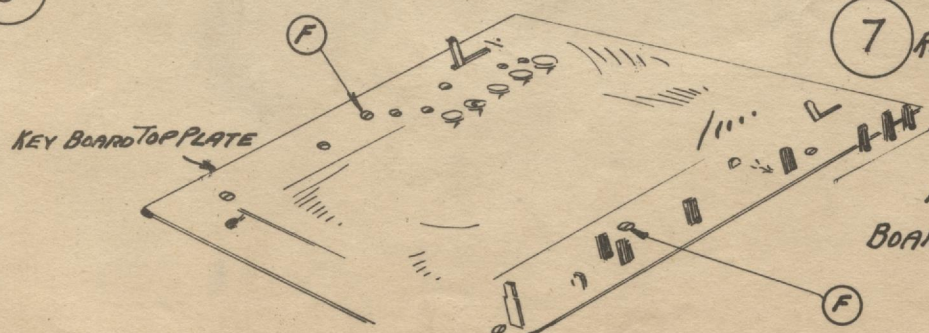
2 REMOVE SCREW (C) AND R.H. SHIFT BUTTON (B)

3 REMOVE THE SIX SCREWS THAT HOLD R.H. SIDE COVER PLATE

4 PULL BACK THE TWO CARRIAGE LOCK LATCHES (D) RAISE CARRIAGE AND HOLD IN RAISED POSITION WITH LEFT HAND. - WITH RIGHT HAND LIFT SIDE PLATE UPWARD OVER KEY STEMS.

5 REMOVE THE TWO SCREWS THAT HOLD BACK PLATE TO LEFT HAND SIDE PLATE. BACK PLATE, LEFT HAND SIDE PLATE AND FRONT PLATE MAY NOW BE REMOVED IN THE REGULAR WAY

6 REMOVE L.H. SHIFT BOTTON (E), PLUS AND MINUS BARS, REPEAT KEY TOP AND MASTER CLEAR OUT BUTTON



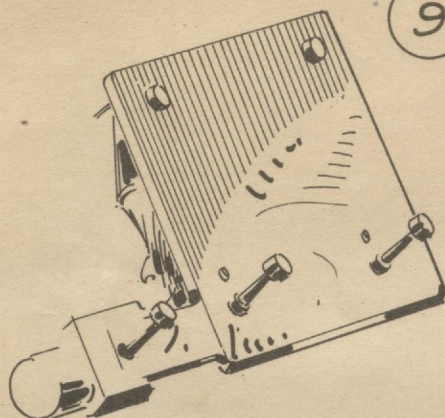
7 REMOVE SCREWS (F) AND KEYBOARD

IMPORTANT

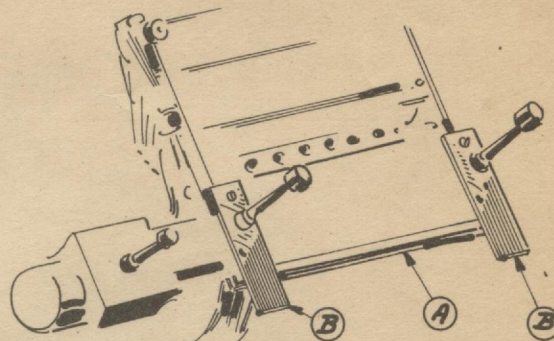
DO NOT REMOVE OR DISTURB ANY OTHER SCREW IN KEY BOARD TOP PLATE

PLATE 2

- 8 SUPPORT CARRIAGE IN A RAISED POSITION AND REMOVE THE OIL SHOES FROM THE CARRIAGE LOCK LATCHES. KEY BOARD MAY NOW BE WITHDRAWN IN REGULAR WAY.

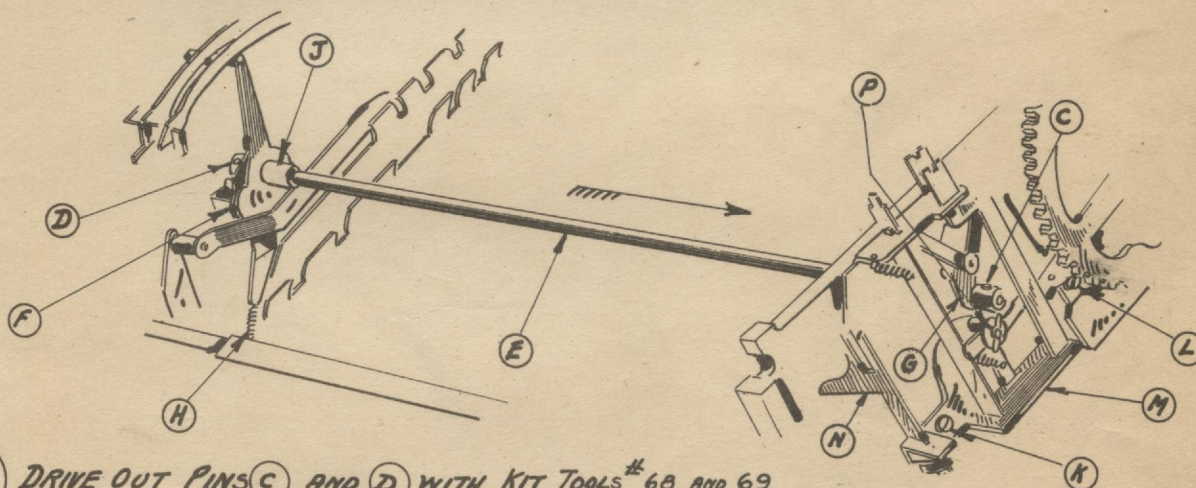


- 9 REMOVE BOTTOM PAN IN REGULAR WAY



IMPORTANT

- 10 THE CONTROL BARS (A) MUST NOT BE DISTURBED OR TRIPPED ACCIDENTALLY DURING DISMANTLING. TO ASSIST IN PREVENTING DISTURBING THESE BARS WHEN THE BOTTOM PAN IS REMOVED, WE PROVIDE TWO STRIPS (B) TO BE ATTACHED AS SHOWN DURING REPAIRS. ADDITIONAL PRECAUTIONS SHOULD BE TAKEN NOT TO DISTURB THESE BARS OR CAUSE THE PAWLS THEY CONTROL TO FUNCTION OUT OF TIME. SEE PLATE 22 FOR DETAILS.

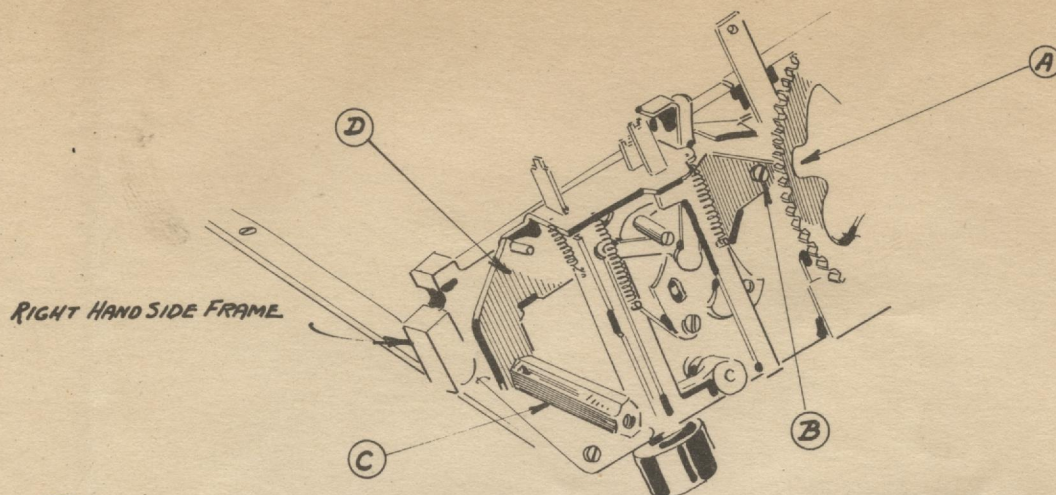


- 11 DRIVE OUT PINS (C) AND (D) WITH KIT TOOLS #68 AND 69

- 12 WITHDRAW SHAFT (E) IN DIRECTION OF ARROW (PART (F) WILL DROP OFF, BE SURE TO LAY IT ASIDE) REMOVE PART (G) AND LAY ASIDE IF SHAFT IS NOT MARKED, CENTER PUNCH THE END ON CRANK SIDE SO THAT IT MAY BE ASSEMBLED IN THE SAME WAY

- 13 UNHOOK SPRING (H) WITH KIT TOOL #36 AND REMOVE ROCKER ARM (J)

- 14 REMOVE SCREWS (K) AND (L) WHICH WILL ALLOW THE REMOVAL OF BRACKET (M) TO WHICH KEY (N) AND REPEAT AND NONREPEAT KEY LEVER (P) WILL BE ATTACHED

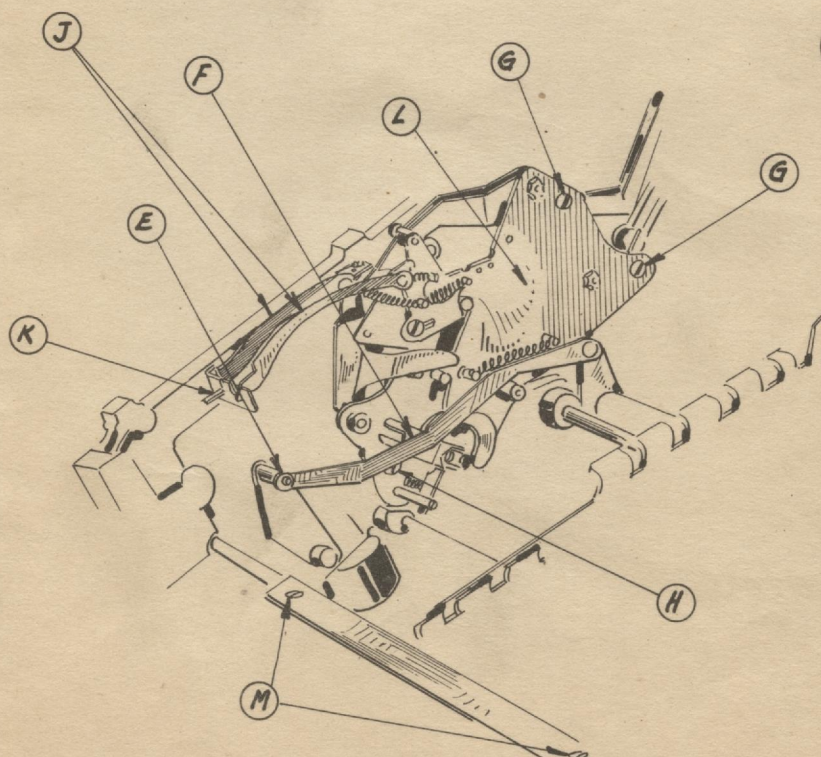


- 15 REVOLVE DRIVING GEAR UNTIL NOTCH (A) IS IN LINE WITH SCREW (B) REMOVE SCREW (B) AND POST (C) REMOVE BRACKET (D) AND LAY IT ASIDE.

DISMANTLING THE PARTS FROM THE L.H. SIDE FRAME, INVOLVING THE AUTOMATIC CARRIAGE SHIFT.

- 16 REMOVE CENTER AND L.H. SCREWS (M) FROM SELECTING BAIL RETAINING STRIP.

- 17 REMOVE TWO L.H. SETS OF SELECTING BAILETS AND LAY ASIDE.



- 18 REMOVE RETAINING RING (E) AND SWING LINK (F) OUT OF THE WAY.

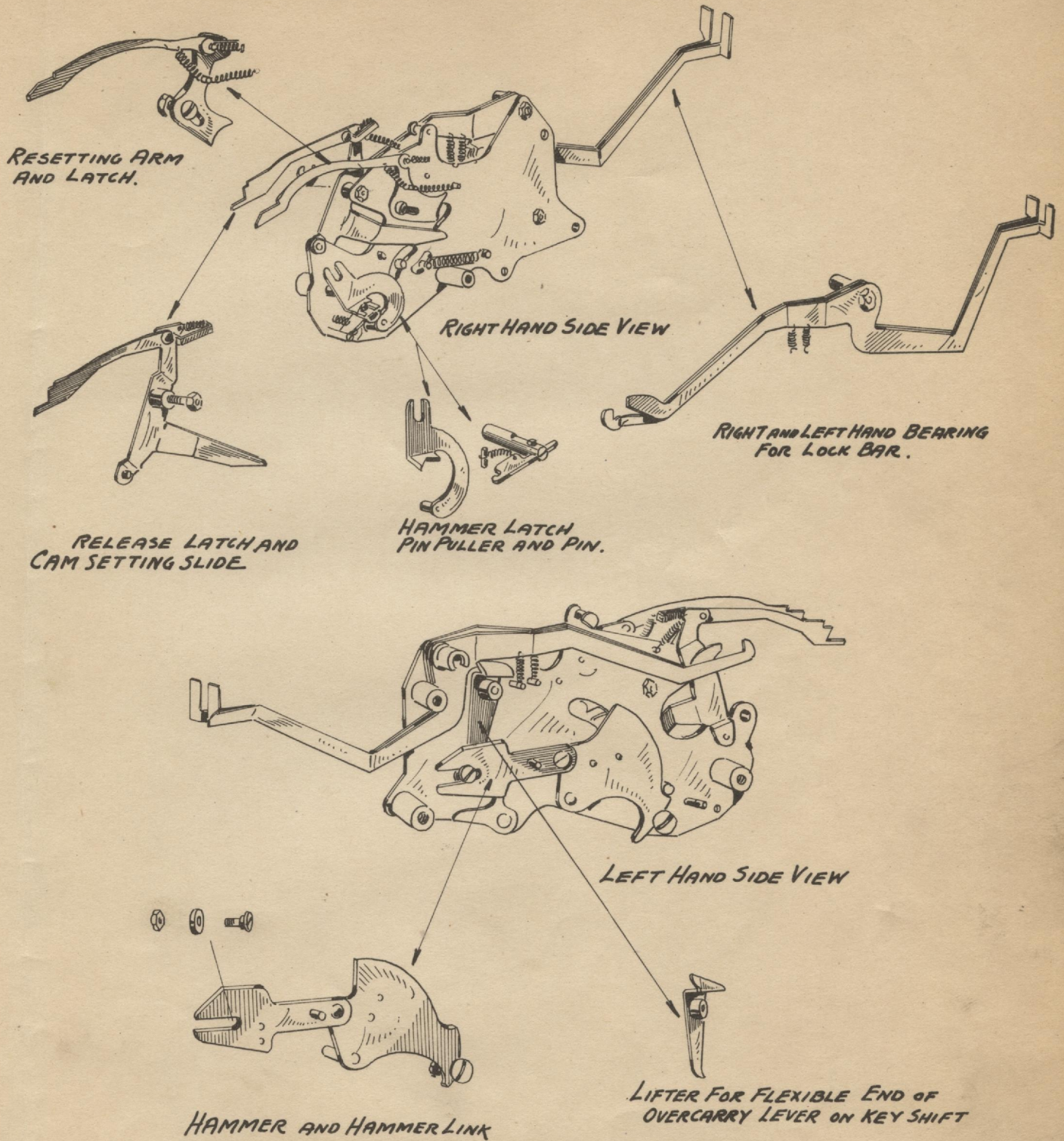
- 19 REMOVE SCREWS (G)

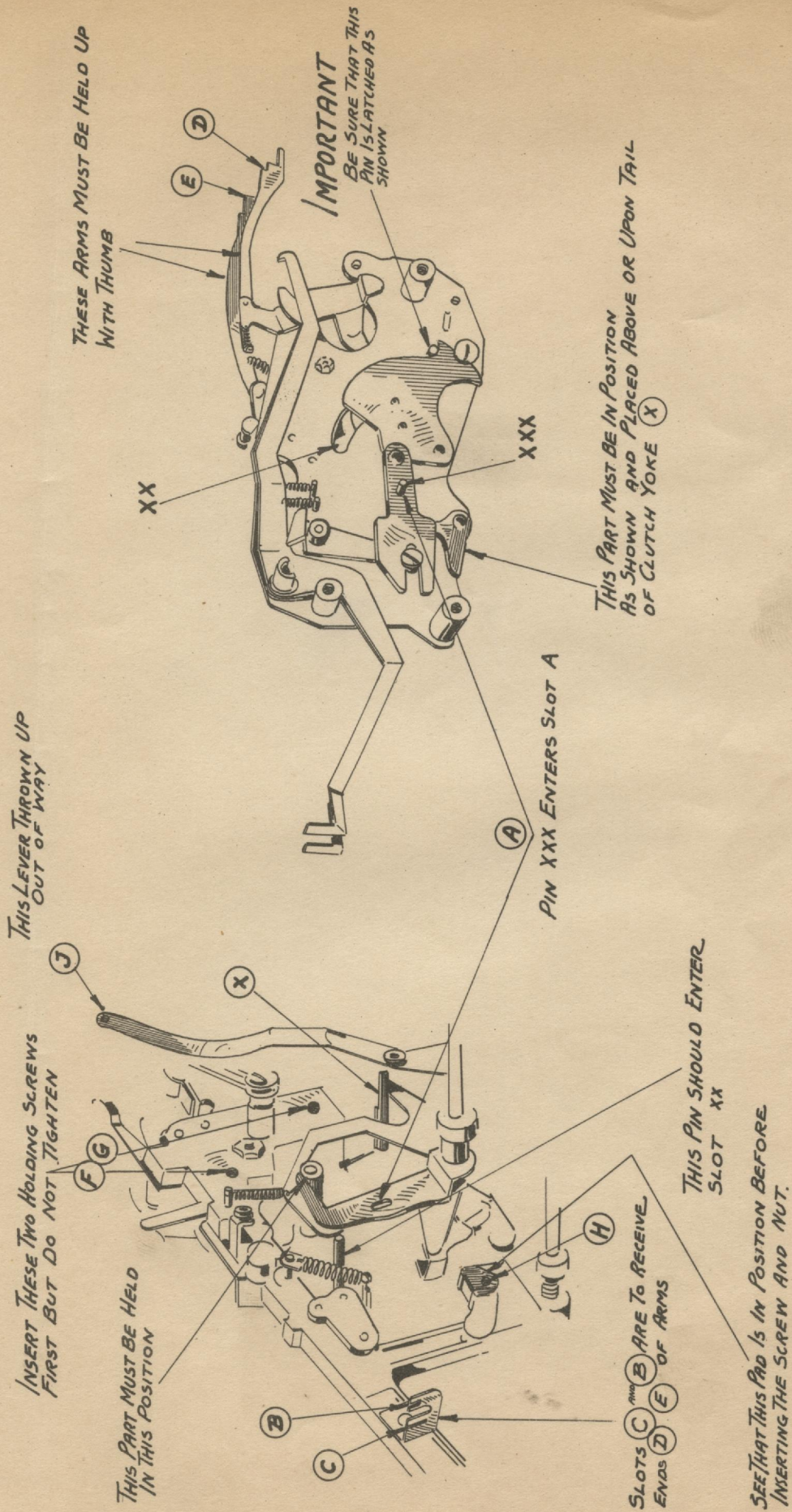
- 20 REMOVE NUT ON SCREW (H) AND REMOVE SCREW (REASSEMBLE NUT ON SCREW)

- 21 LIFT RESETTNG ARM AND CAM SETTING SLIDE (J) FROM SLOTS IN GUIDE (K) . REMOVE UNIT (L) FROM SIDE FRAME.

PLATE 4

THIS UNIT MAY BE DISMANTLED INTO THE SUBUNITS SHOWN BELOW.





NOTES NECESSARY FOR PLACING AUTOMATIC CARRIAGE SHIFT UNIT INTO MACHINE.

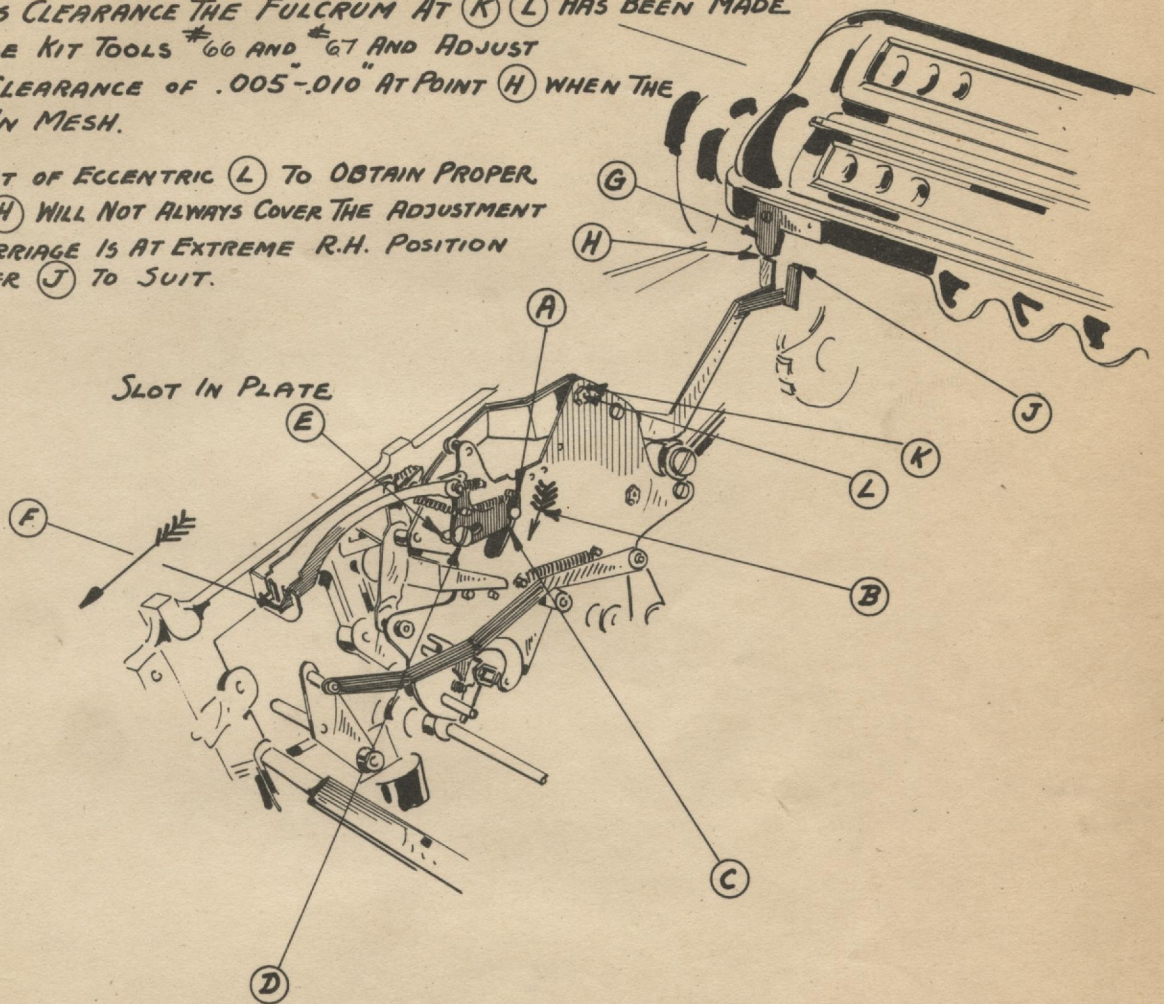
CHECK UP TO SEE THAT ALL LEVERS AND PARTS ARE IN POSITIONS SHOWN ASSEMBLE THE UNIT TO FRAME CAREFULLY ACCORDING TO THE INSTRUCTIONS CONTAINED IN THE NOTES ABOVE. SCREW THE HOLDING SCREWS F AND G INTO SIDE FRAME ASSEMBLE NUT (H) TIGHTEN THE TWO HOLDING SCREWS F G AND NUT ON H SECURELY

IT IS NOW POSSIBLE TO REASSEMBLE LEVER J AND ITS RETAINING RING.

ADJUSTMENT NOTES ON AUTOMATIC CARRIAGE SHIFT UNIT AFTER BEING REPLACED

WHEN CARRIAGE IS AT EXTREME RIGHT THERE SHOULD BE A SLIGHT CLEARANCE AT POINT (H). TO OBTAIN THIS CLEARANCE THE FULCRUM AT (K) (L) HAS BEEN MADE ECCENTRIC; USE KIT TOOLS #66 AND #67 AND ADJUST TO CREATE A CLEARANCE OF .005"-.010" AT POINT (H) WHEN THE CARRIAGE IS IN MESH.

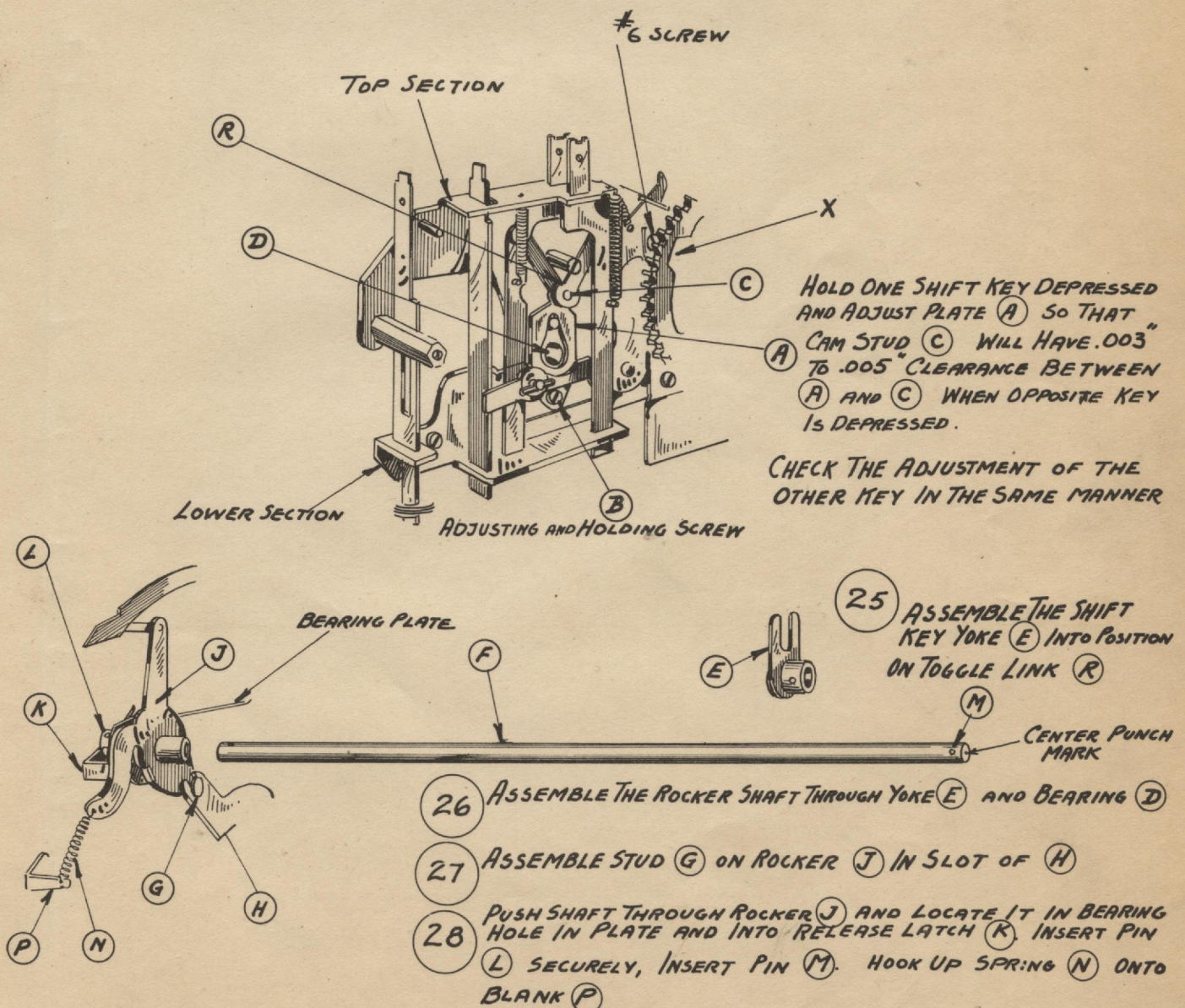
THE ADJUSTMENT OF ECCENTRIC (L) TO OBTAIN PROPER CLEARANCE AT (H) WILL NOT ALWAYS COVER THE ADJUSTMENT OF (J) WHEN CARRIAGE IS AT EXTREME R.H. POSITION BEND THE LEVER (J) TO SUIT.



AS PIN (A) IN CYCLE STOPPING ARM MOVES IN DIRECTION OF ARROW (B) IT CAMS OVER POINT (C). IN PASSING, THIS PIN SHOULD HAVE A CLEARANCE OF .003" TO .005". THIS CLEARANCE MAY BE OBTAINED BY LOOSENING NUT ON SCREW (D) WHICH IS POSITIONED IN SLOT (E). WHEN ADJUSTMENT IS COMPLETED TIGHTEN NUT ON SCREW (D) SECURELY. CAUTION; TOO MUCH CLEARANCE IS DETRIMENTAL AS THE RETURN OF THE PIN (A) CONTROLS THE MOVEMENT OF ARM (F) IN DIRECTION OF ARROW.

NOTES ON REASSEMBLING THE AUTOMATIC CARRIAGE SHIFT

- 22 REASSEMBLE THE TWO LEFT SETS OF SELECTING BAILS AND TIGHTEN SCREWS IN THE RETAINING STRIP
- 23 ASSEMBLE THE TOP SECTION OF KEY BRACKET (REVOLVE CRANK DRIVING GEAR SO THAT NOTCH X WILL ALLOW THE INSERTION OF SCREW #6
- 24 ASSEMBLE THE LOWER SECTION OF KEY BRACKET



SHOWING FUNCTIONING OF AUTOMATIC CARRIAGE SHIFT MECHANISM.

THE FIRST THING IS TO DETERMINE WHETHER THE ACTION IS LOADED OR NOT;
IF NOT LOADED, EITHER KEY WILL DEPRESS BUT WILL NOT FUNCTION.
TO LOAD, SIMPLY DEPRESS THE + OR - BAR FOR ONE CYCLE IF POWER IS ON.
IF POWER IS OFF, DEPRESS CYCLE STOPPING ARM TO BUMPER PAD.

THE NEUTRAL POSITION OF THE MECHANISM UNDER DISCUSSION IS SHOWN BELOW

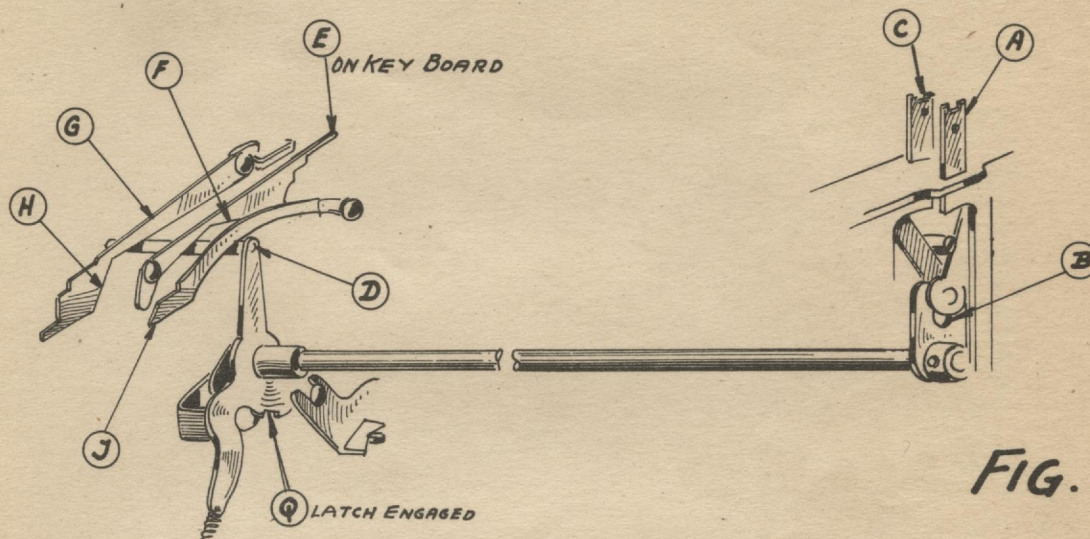


FIG. 1

KEYS (A) (C) ARE UP. YOKE (B) IS VERTICAL. PIN (D) LIES BETWEEN CAM SURFACES (F) AND (H) ON SETTING ARMS (G) AND (E). ARM (J) DOES NOT FUNCTION IN THIS MOVEMENT

AS THE KEY (A) STARTS TO TRAVEL DOWNWARD AT ABOUT $\frac{1}{3}$ OF THE STROKE THE POSITION OF THE MECHANISM IS AS FOLLOWS: YOKE (B) HAS ROCKED THE SHAFT (L) WHICH IN TURN HAS ADVANCED PIN (D) AGAINST THE CAM SURFACE (H), RAISING SETTING ARM (G) UPWARD AND ENGAGING NOTCH WITH LUG (K). THE SHAPE OF THE LUG (K) SERVES TO HOLD ARM (G) IN ENGAGEMENT DURING FORWARD MOTION OF BAR (M).

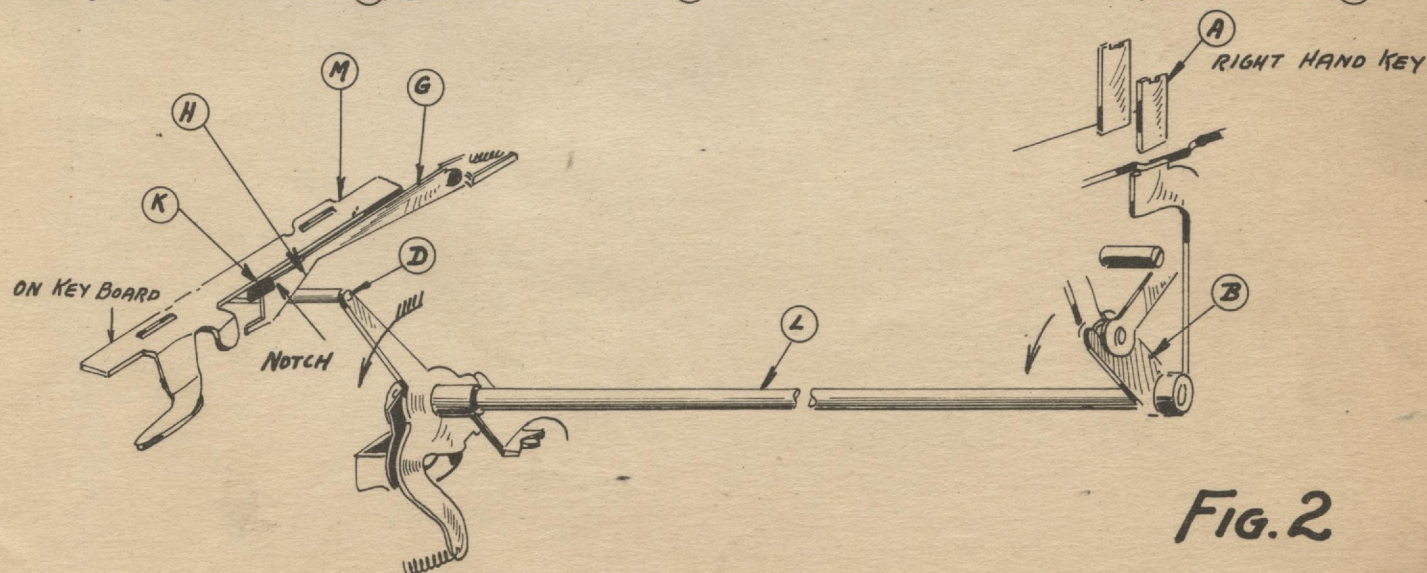


FIG. 2

SHOWING FUNCTIONING OF AUTOMATIC CARRIAGE SHIFT MECHANISM

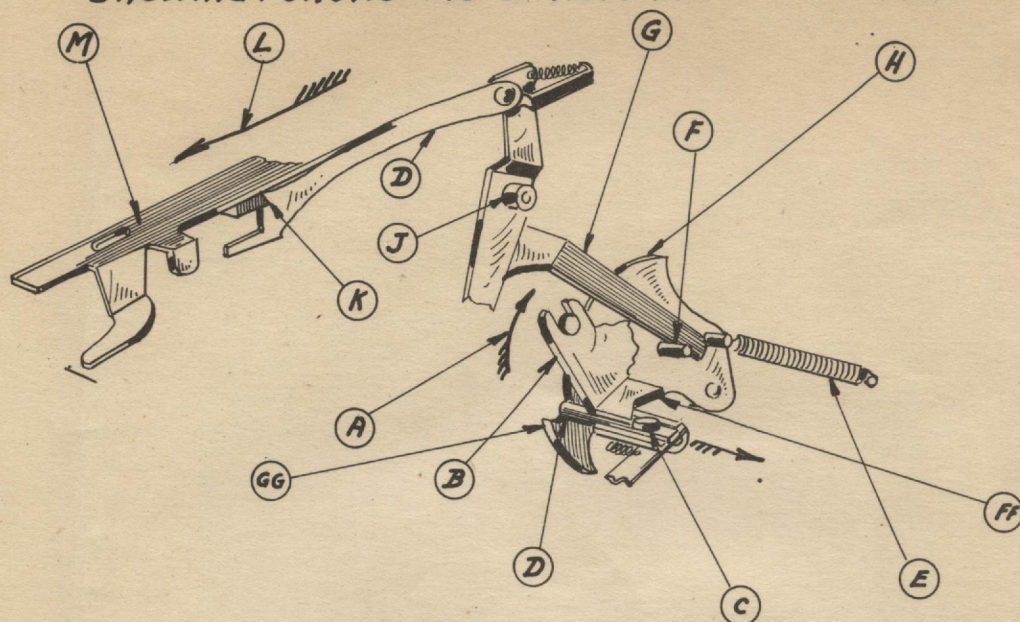


FIG. 3

FOLLOWING THE ENGAGEMENT AT (K) THE ADVANCE OF THE DEPRESSION OF THE KEY SWINGS LATCH CAM (B) IN DIRECTION OF ARROW (A). THIS ACTS ON LATCH PIN (C) WHICH PULLS PIN (D) FROM ENGAGEMENT WITH (H). THIS DISENGAGEMENT ALLOWS SPRING (E) TO ACT ON (H) WHICH CAUSES PIN (F) TO CONTACT AGAINST LEVER (G) WHICH IS FULCRUMED AT (J) CAUSING A QUICK MOTION IN DIRECTION OF ARROW (L) OF SLIDE (M).

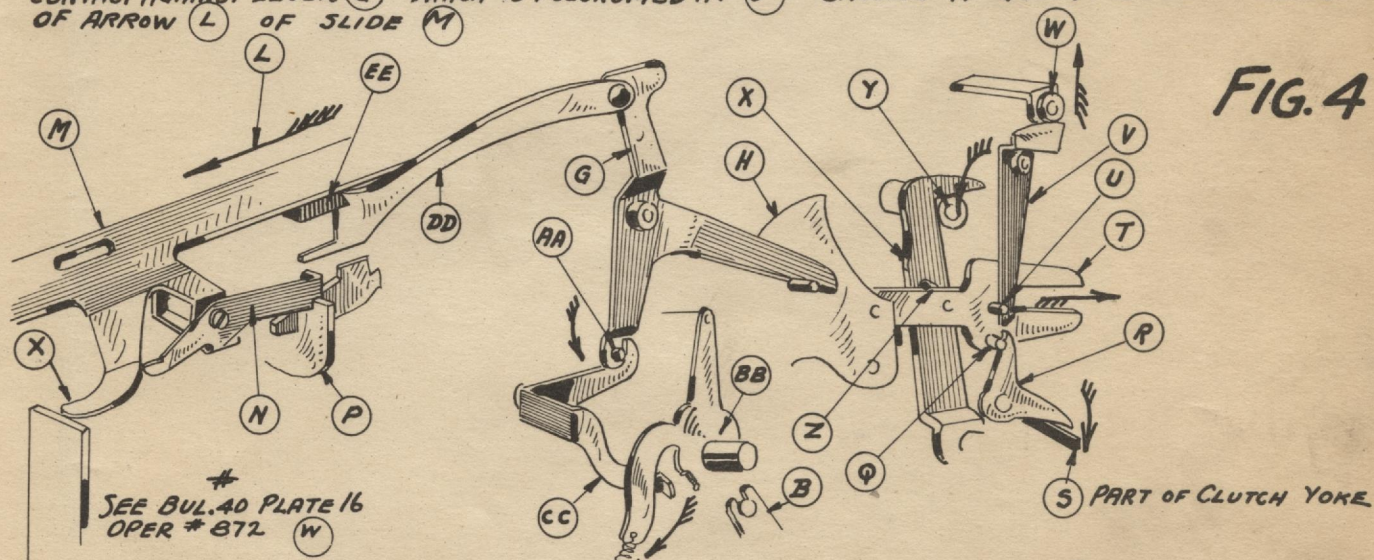


FIG. 4

FORWARD MOTION OF (M) IS CONTINUED UNTIL LATCH (N) ENGAGES WITH PLATE (P). DURING THIS FORWARD MOTION OF (M) THE FOLLOWING FUNCTIONS HAVE OCCURRED. AS HAMMER LINK (T) IS DRIVEN IN DIRECTION OF ARROW (Q) ACTS ON BELL CRANK (R) DEPRESSING (S) WHICH ENGAGES CLUTCH YOKE; PIN (U) ACTS ON ARM (V) WHICH CAMS UPWARD (W) LIFTING THE FLEXIBLE END OF OVERCARRY TRIP LEVER; PIN (Z) ACTS ON ARM (X) WHICH CAMS DOWN ROLLER (Y) WHICH IN TURN DISENGAGES MACHINE LOCATOR ARM AND CLOSES CONTACTS ON STOP AND START SWITCH. THE MOTION OF (H) ALSO ACTS ON ARM (G) AND PIN (AA) RAISING RELEASE LATCH (CC) FROM ENGAGEMENT WITH ROCKER (BB) ALLOWING ITS SPRING TO CENTRALIZE ROCKER AND BLANK (B). THIS PERMITS LATCH PIN (D) FIG. 3 TO ENGAGE BLANK (H) AS THE MECHANISM PROCEEDS TO SHIFT THE CARRIAGE AS PER PLATE 21 FIG. 16. BUL. # 40

SHOWING FUNCTION OF AUTOMATIC CARRIAGE SHIFT MECHANISM

AS THE CYCLE STOPPING ARM (B) DESCENDS TO THE BUMPER PAD, PIN (A) IN THIS ARM PERFORMS THE FOLLOWING FUNCTIONS

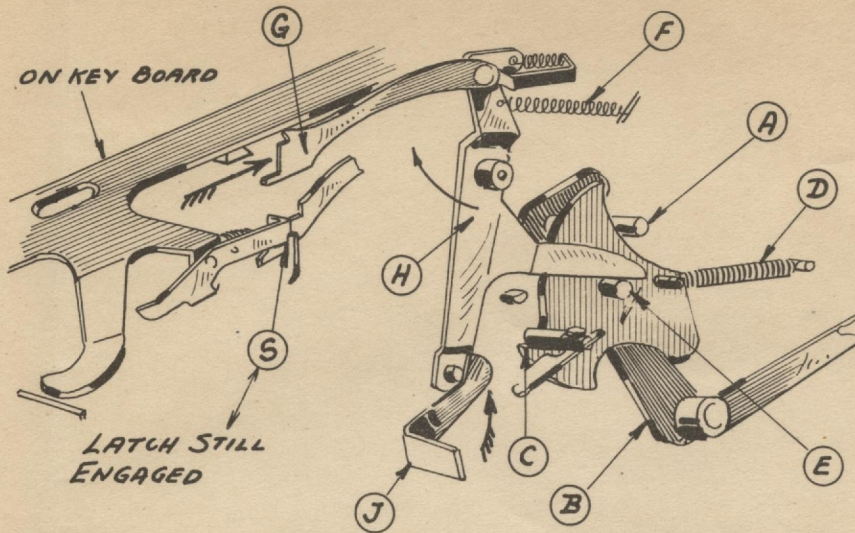


FIG. 5

THE HAMMER IS RELATCHED BY PIN (C); THE SPRING (D) IS RELOADED: PIN (E) DESCENDS, ALLOWING SPRING (F) TO RETURN ARM (G) IN DIRECTION OF ARROW: AS (H) SWINGS IN DIRECTION OF ARROW RELEASE LATCH (J) ENGAGES ROCKER — SEE FIG. 1

ALSO IT NEUTRALIZES THE MOTIONS SHOWN BELOW BECAUSE THE LINK (T) HAS RECEDED

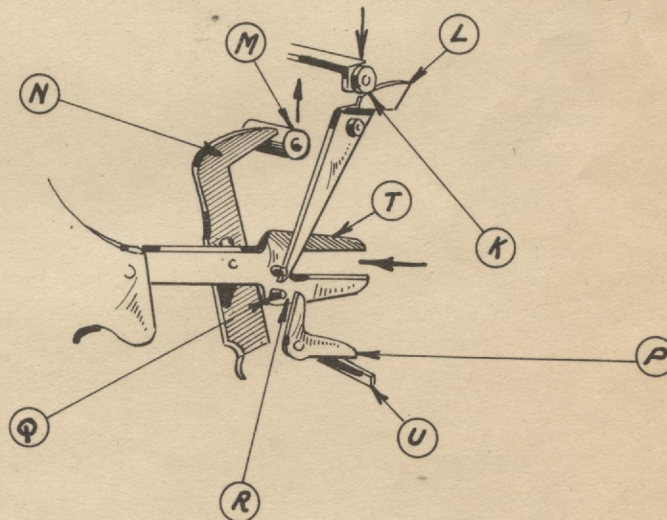
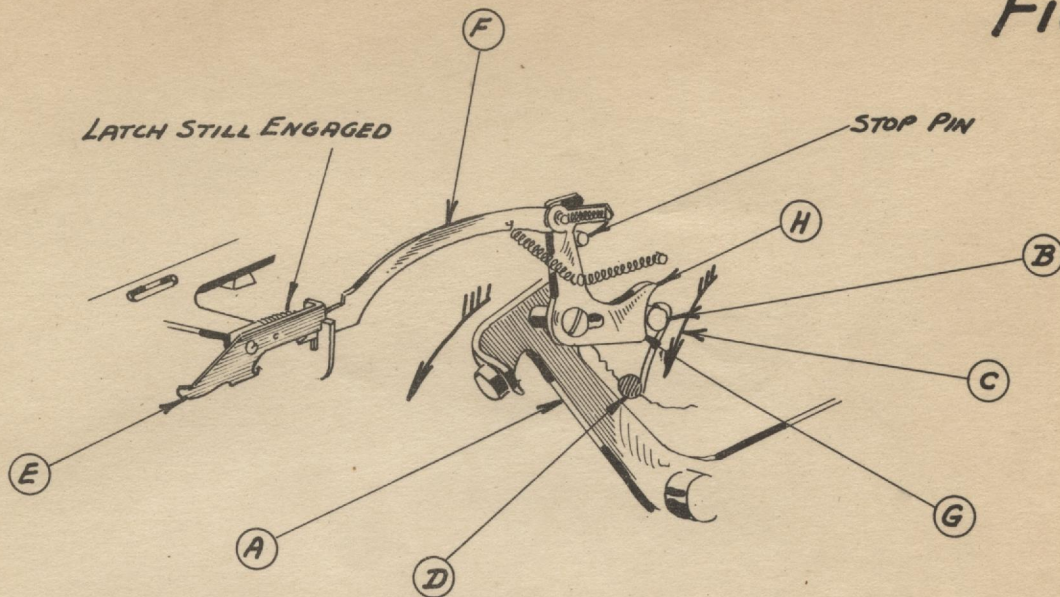


FIG. 6

THE SWINGING OF (L) ALLOWED ROLLER (K) TO DROP TO NEUTRAL: ROLLER (M) HAS RISEN BECAUSE (N) HAS BEEN PULLED BACK. BELL CRANK (P) REMAINS UPON TAIL OF CLUTCH YOKE: SPACE (R) WILL ALLOW CLUTCH YOKE (U) TO NEUTRALIZE. SPACE IS ALSO PROVIDED TO PERMIT THE PROPER FUNCTIONING OF THE CLUTCH YOKE (U) WHEN THE MINUS BAR IS DEPRESSED.

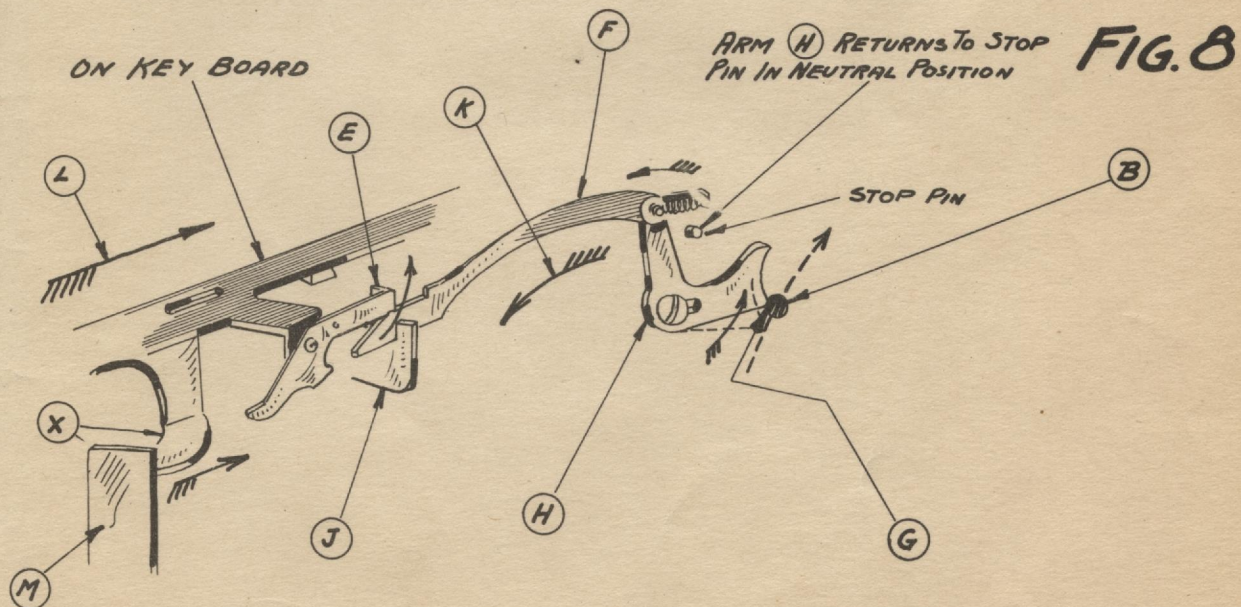
SHOWING FUNCTIONING OF AUTOMATIC CARRIAGE SHIFT MECHANISM. RESETTNG OF THE R. H. SHIFT

FIG. 7



AS THE CYCLE STOPPING ARM (A) DESCENDS IN DIRECTION OF ARROW, (PIN B) IT ALSO SERVES ANOTHER FUNCTION IN THAT IT RIDES UNDER POINT (G) AND PLACES ITSELF IN POSITION (D) BELOW PART (H) - AS YET LEAVING ARM (F) AND LATCH (E) UNDISTURBED -

HOWEVER - UPON ITS RETURN STROKE THE FOLLOWING OCCURS



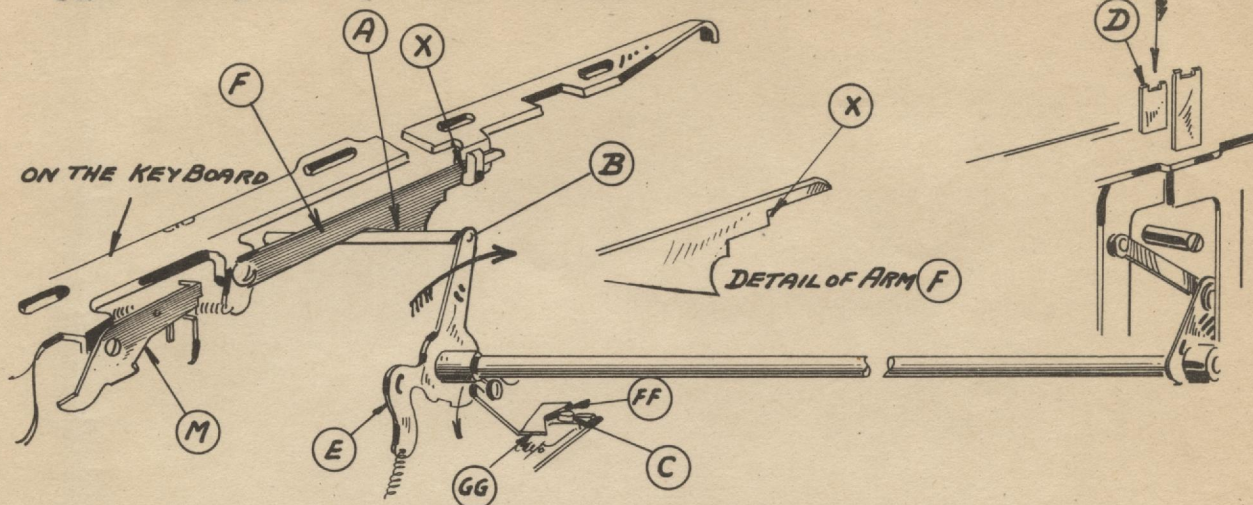
PIN (B) IN RIDING UNDER POINT (G) HAS MOVED ARM (F) FORWARD IN DIRECTION OF ARROW (K). THIS FORWARD MOTION HAS UNLATCHED LATCH (E) FROM PLATE (J) BY CAMMING (E) UPWARD. THIS UNLATCHING HAS ALLOWED POINT (X) TO BE PUSHED BACK BY (M) (SPRING 'B' PLATE 19 FIG. 7 BUL. #40) ALLOWING THE CARRIAGE SHIFT MECHANISM (BUL. #40 PLATE 16) TO NEUTRALIZE. (ARM (H) RETURNS TO STOP PIN IN NEUTRAL POSITION)

PLATE 12

SHOWING FUNCTION OF AUTOMATIC CARRIAGE SHIFT MECHANISM.
LEFT HAND SHIFT KEY ONLY

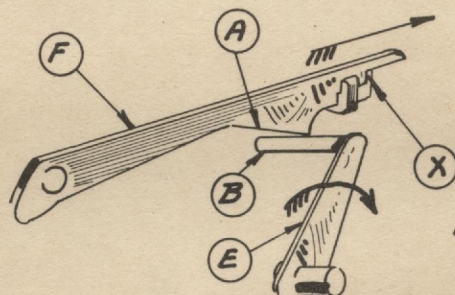
SEE PLATE 8 FIG.1 FOR NEUTRAL POSITION

FIG.9



A $\frac{1}{3}$ MOVEMENT OF THE DEPRESSION OF KEY (D) BRINGS PIN (B) IN CONTACT WITH CAM SURFACE (A) AS ROCKER (E) MOVES IN DIRECTION OF ARROW

FIG.10



FURTHER MOTION OF ROCKER (E) LIFTS ARM (F) FROM FACE (X) AND SPRING (B) (FIG.7 PLATE 19 BUL.40) SERVES TO THROW ARM (F) IN DIRECTION OF ARROW CAUSING AN ENGAGEMENT OF THE CARRIAGE SHIFT CAM RATCHET WHICH PERMITS CARRIAGE TO SHIFT.

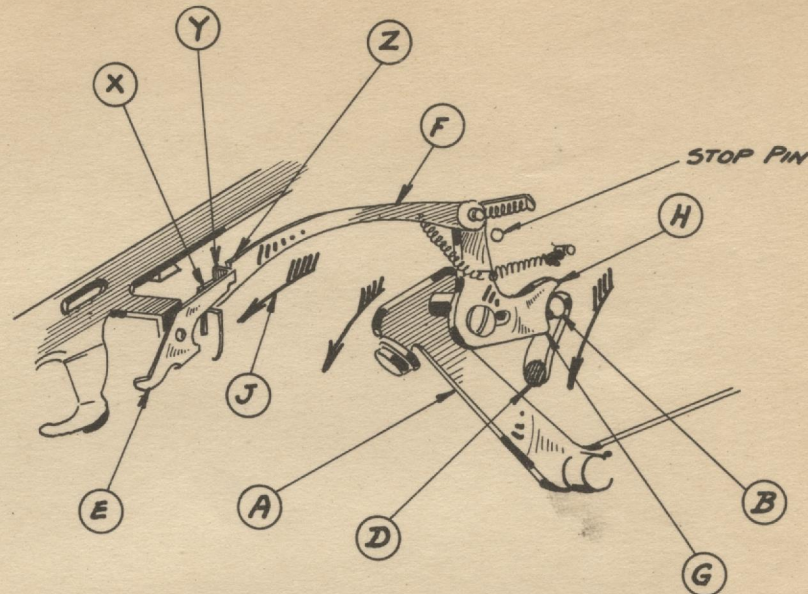
FURTHER DEPRESSION OF KEY (D) SETS INTO MOTION ALL OF THE FUNCTIONS DESCRIBED ON PLATE 9 FIG. 3 AND 4, EXCEPT POSITION (DD) WHICH SLIDES UNDER BLOCK (EE). ROCKER (E) SWINGS TO REAR INSTEAD OF FRONT AND PIN (C) (PLATE 9 FIG 3) IS CAMMED OUT WITH THE CAM SURFACE (FF) INSTEAD OF (GG) : NOTE; ON ACCOUNT OF (DD) SLIDING UNDER BLOCK (EE) THE LATCH (N) IS NOT ENGAGED

THE MOTIONS SHOWN ON PLATE 10 FIG. 5 AND 6 NOW COME INTO ACTION WITH THE EXCEPTION THAT LATCH (S) IS NOT ENGAGED

THE RESETTNG FUNCTIONS ARE SHOWN ON PLATE 13

SHOWING FUNCTIONING OF AUTOMATIC CARRIAGE SHIFT MECHANISM. RESETTING OF THE L. H. SHIFT

FIG. 11



AS THE CYCLE STOPPING ARM (A) DESCENDS IN DIRECTION OF ARROW; PIN (B) ALSO SERVES ANOTHER FUNCTION IN THAT IT RIDES UNDER POINT (G) AND PLACES ITSELF IN POSITION (D) BELOW PART (H). NOTE THAT LIP OF LATCH (E) AT (Y) RESTS ON SURFACE (X) OF ARM (F) IN FRONT OF SURFACE (Z) READY TO BE PUSHED IN DIRECTION OF ARROW (J) AT THE NEXT MOVEMENT SHOWN BELOW.

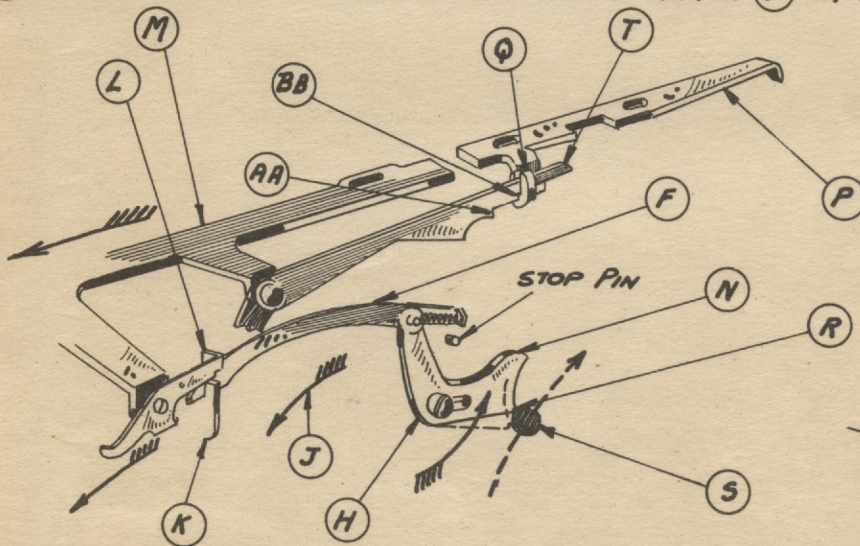
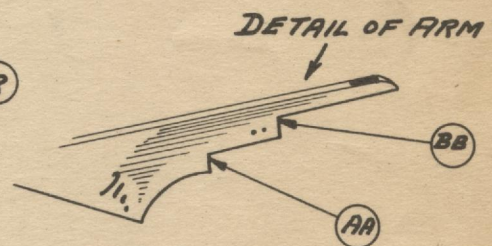


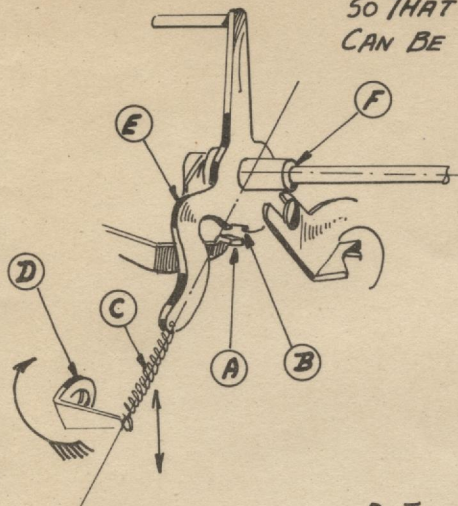
FIG. 12



PIN (S) IN RIDING UNDER POINT (R) HAS MOVED ARM (F) FORWARD IN DIRECTION OF ARROW (J). THIS FORWARD MOTION MOVES LATCH (L) IN DIRECTION OF ARROW. THIS LATCH IS ATTACHED TO SLIDE (M) TO WHICH IS ATTACHED ARM (T). AS THIS ARM MOVES, IT SLIDES AWAY FROM SURFACE (AA) UNTIL SURFACE (BB) ENGAGES NOTCH (Q) AND MECHANISM IS AGAIN IN ITS NEUTRAL POSITION. ARM (H) RETURNS TO STOP PIN AND IS ALSO NEUTRALIZED.

NOTES ON ADJUSTING AND FUNCTIONING OF THE AUTOMATIC CARRIAGE SHIFT MECHANISM

FIG. 13



SPRING (C) SERVES TO LOCATE THE NEUTRAL POSITION OF ROCKER ARM (E) SO THAT THE RELEASE LATCH (A) CAN ENTER NOTCH (B). THE BLANK (D) CAN BE ADJUSTED TO SUIT THIS CONDITION.

HUB (F) MUST BE FREE ON ROCKER SHAFT.

NO BIND MUST OCCUR IN EITHER RIGHT OR LEFT SHIFT KEYS (G). PROPER LOOPS AND TENSION ARE NECESSARY ON SPRING (C).

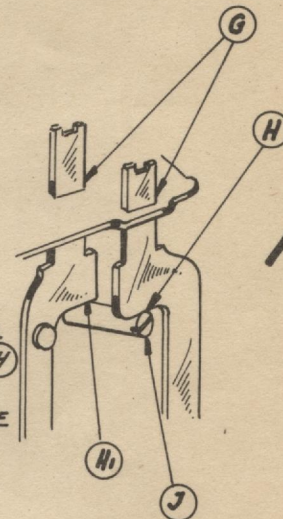


FIG. 14

AS THE KEYS DESCEND THEY COME INTO CONTACT WITH PIN (J) AT (H) AND (H₁). THIS CONTACT IS ADJUSTABLE AND DETERMINES THE THROW OF THE ROCKER ARM (E).

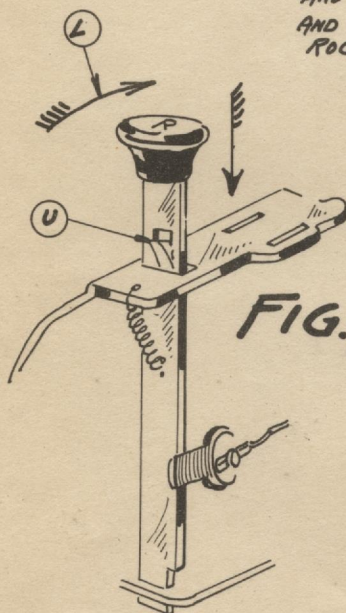
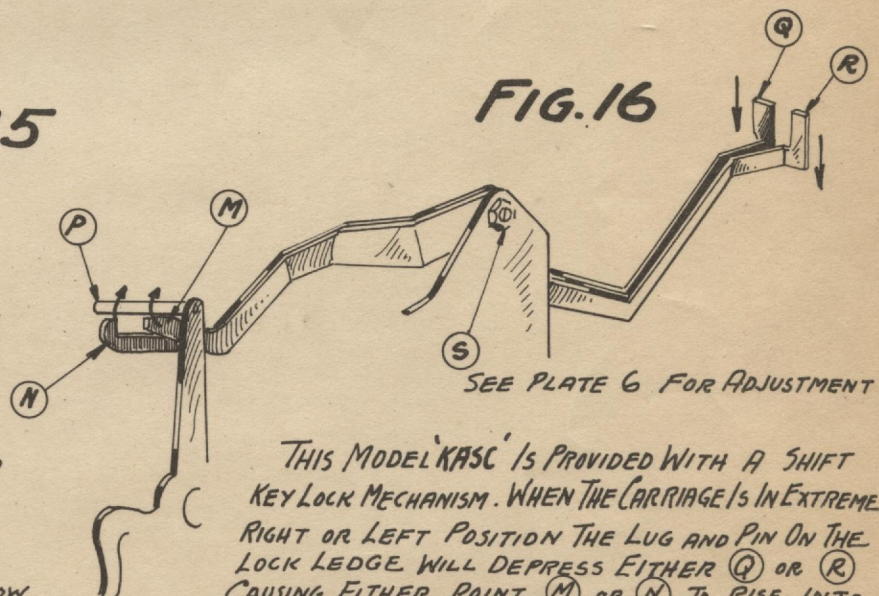


FIG. 15

FIG. 16

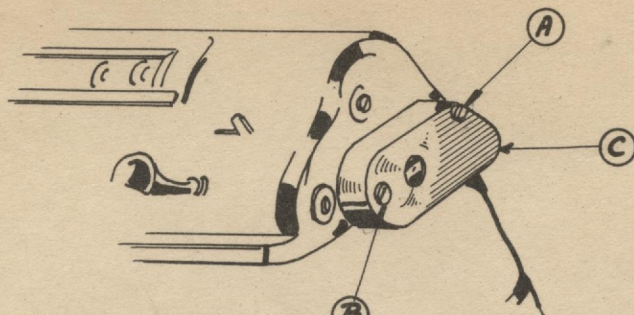


SEE PLATE 6 FOR ADJUSTMENT

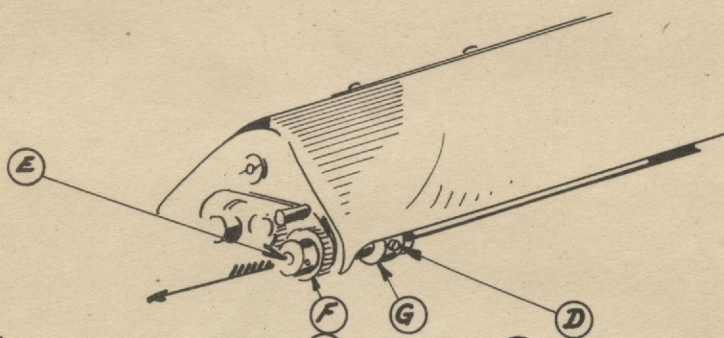
THIS KEY SERVES AS THE REPEAT AND 'NON REPEAT' KEY. POSITION SHOWN ABOVE IS 'NON REPEAT'; FOR REPEAT POSITION DEPRESS THE KEY UNTIL (U) LATCHES IT. TO UNLATCH PRESS IN DIRECTION OF ARROW (L) AND RELEASE.

THIS MODEL 'KASC' IS PROVIDED WITH A SHIFT KEY LOCK MECHANISM. WHEN THE CARRIAGE IS IN EXTREME RIGHT OR LEFT POSITION THE LUG AND PIN ON THE LOCK LEDGE WILL DEPRESS EITHER (Q) OR (R) CAUSING EITHER POINT (M) OR (N) TO RISE INTO THE PATH OF PIN (P) PREVENTING MOVEMENT OF ROCKER ARM AND SHIFT KEY.

NOTES ON DISMANTLING AUTOMATIC CARRIAGE CLEAR OUT

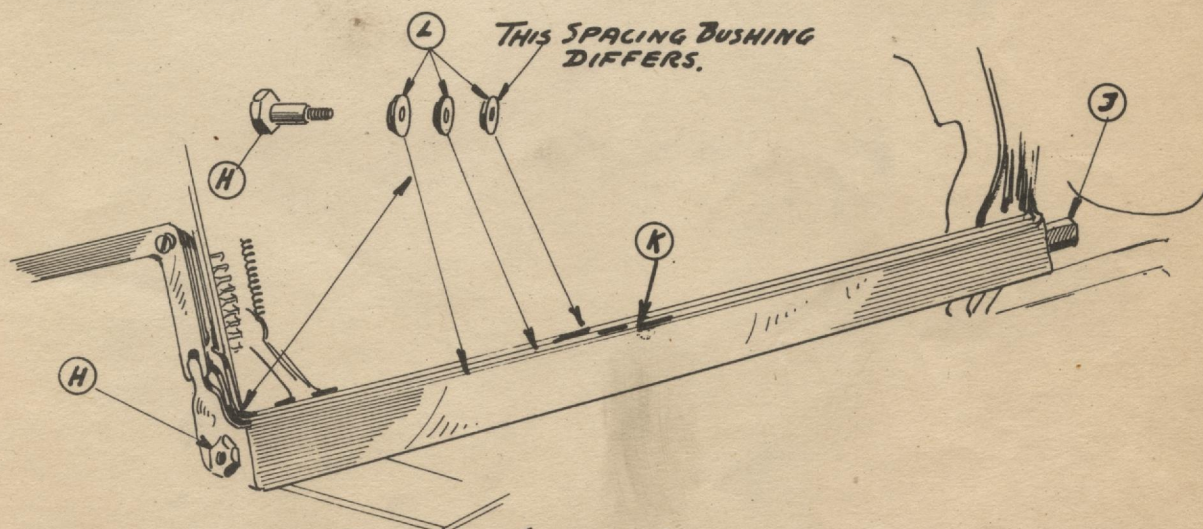


- 30 REMOVE SCREWS A AND B AND LAY ASIDE COVER C



- 31 LOOSEN SET SCREW D IN COLLAR G AND WITHDRAW HINGE ROD E WITH GEAR F ATTACHED - LIFT OFF THE CARRIAGE AND LAY IT ASIDE

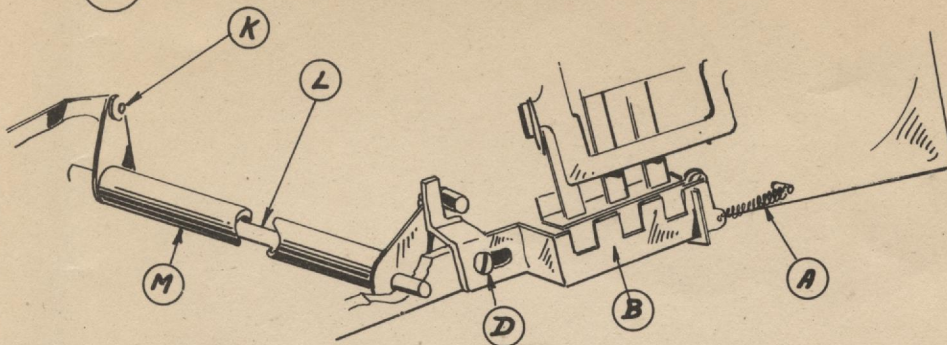
- 32 PERFORM THE CASE DISMANTLING OPERATIONS 1. 2. 3. 5. 9. 10. ON PLATES 1 AND 2



- 33 REMOVE PIVOT STUDS H AND J (KIT TOOL #61) AND REMOVE THE CROSS OVER LEVERS K. NOTE BUSHINGS L; LAY THEM ASIDE WITH LEVERS AND STUDS

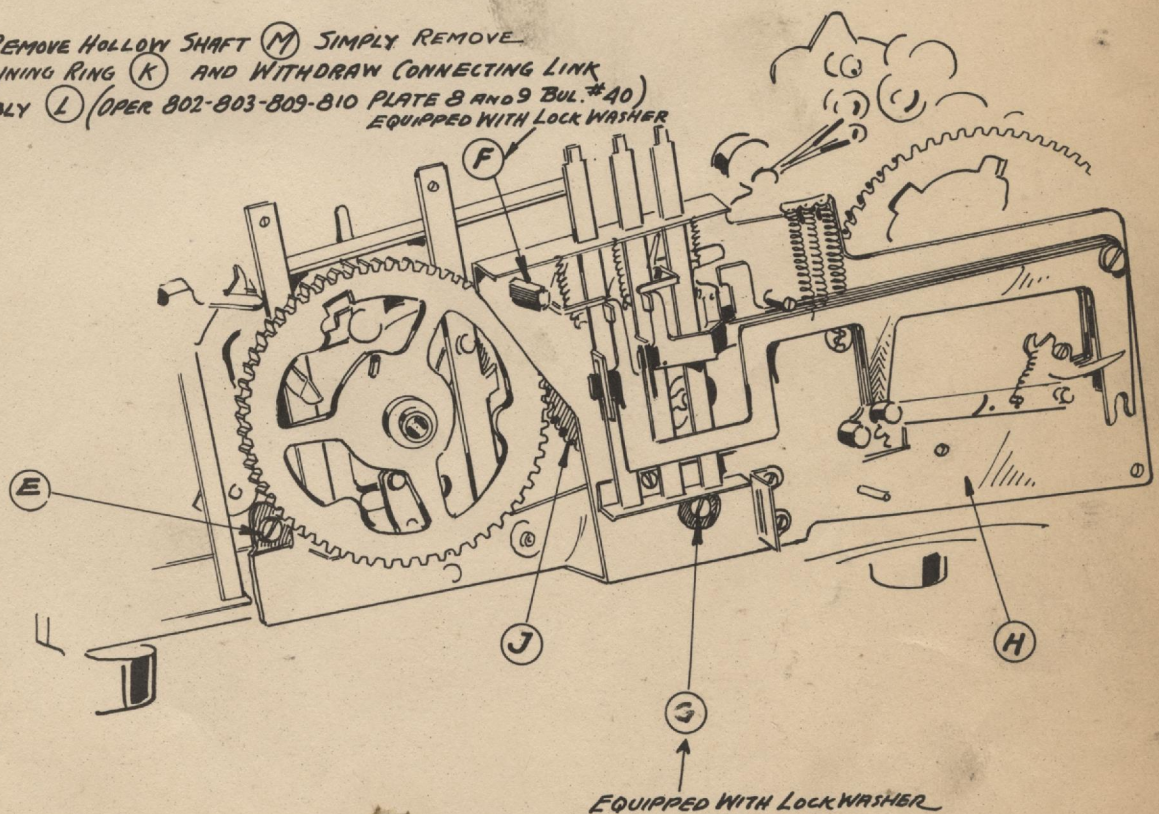
NOTES ON DISMANTLING THE AUTOMATIC CARRIAGE CLEAROUT MECHANISM

- 34 REMOVE 'STOP AND START' SWITCH FROM R.H. SIDE OF MACHINE



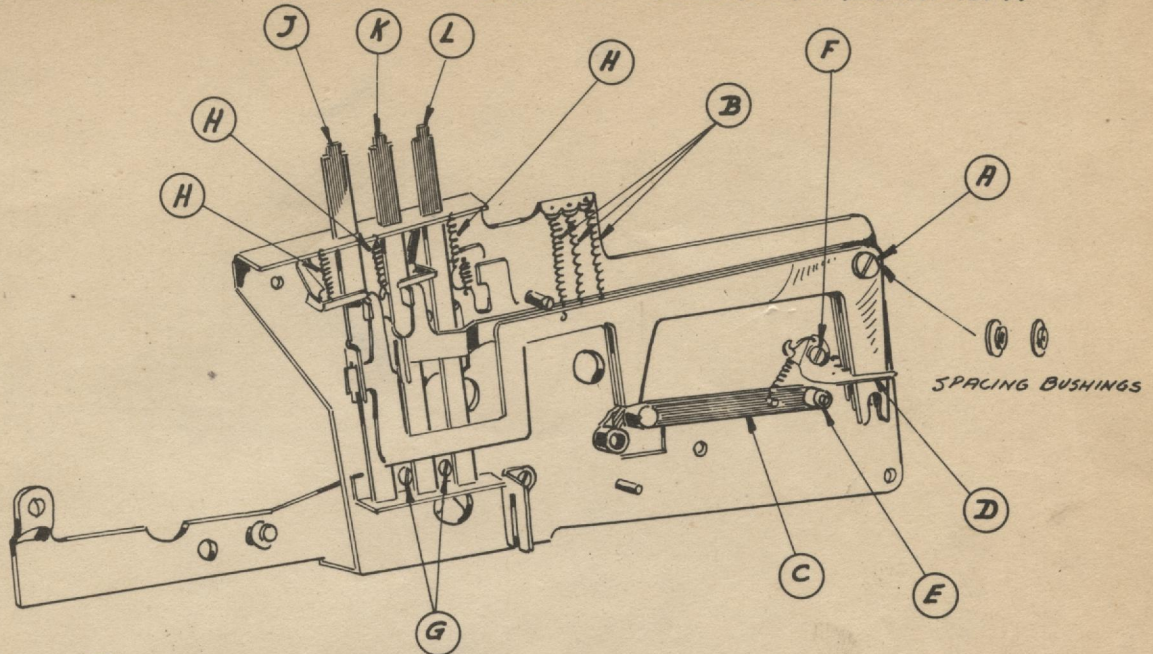
- 35 REMOVE SPRING (A) AND LAY ASIDE. REMOVE SCREW (D). REMOVE BLANK (B)

IF NECESSARY TO REMOVE HOLLOW SHAFT (M) SIMPLY REMOVE RETAINING RING (K) AND WITHDRAW CONNECTING LINK ASSEMBLY (L) (OPER 802-803-809-810 PLATE 8 AND 9 BUL. #40) EQUIPPED WITH LOCK WASHER

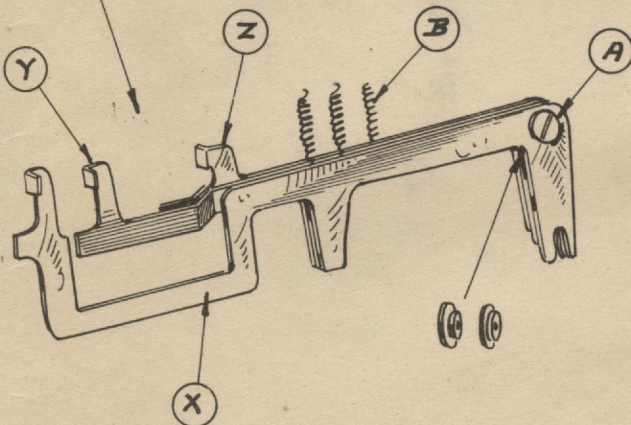


- 36 REMOVE SCREW (E) AND STUD (F) REVOLVE GEAR (J) TO GAIN ACCESS TO THE SCREW (G) WHICH ALSO MUST BE REMOVED.
UNIT (H) MAY NOW BE REMOVED FROM SIDE FRAME.

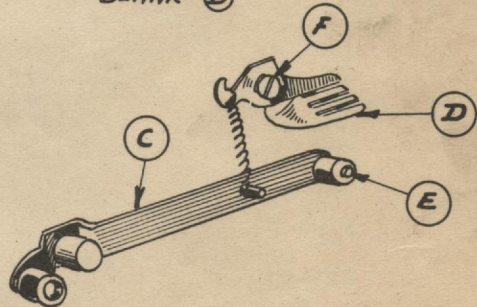
NOTES ON DISMANTLING THE AUTOMATIC CARRIAGE CLEAROUT MECHANISM.



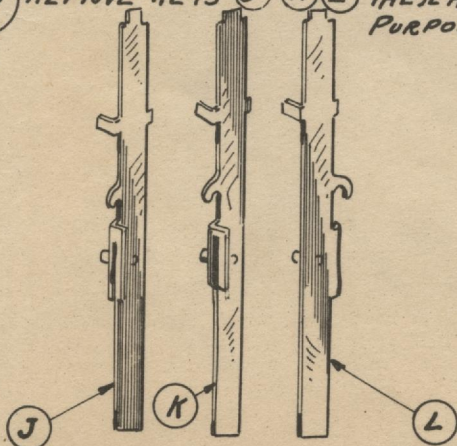
38 REMOVE SCREW (A) UNHOOK SPRINGS (B) AND LEVERS (X) (Y) (Z) CAN BE DISMANTLED



39 REMOVE RETAINING RING (E) AND REMOVE CONTACT LEVER (C) REMOVE SCREW (F) AND GUIDE BLANK (D)



40 REMOVE KEYS (J) (K) (L) THESE ARE NOT INTERCHANGEABLE AND SHOULD BE MARKED FOR IDENTIFICATION PURPOSES



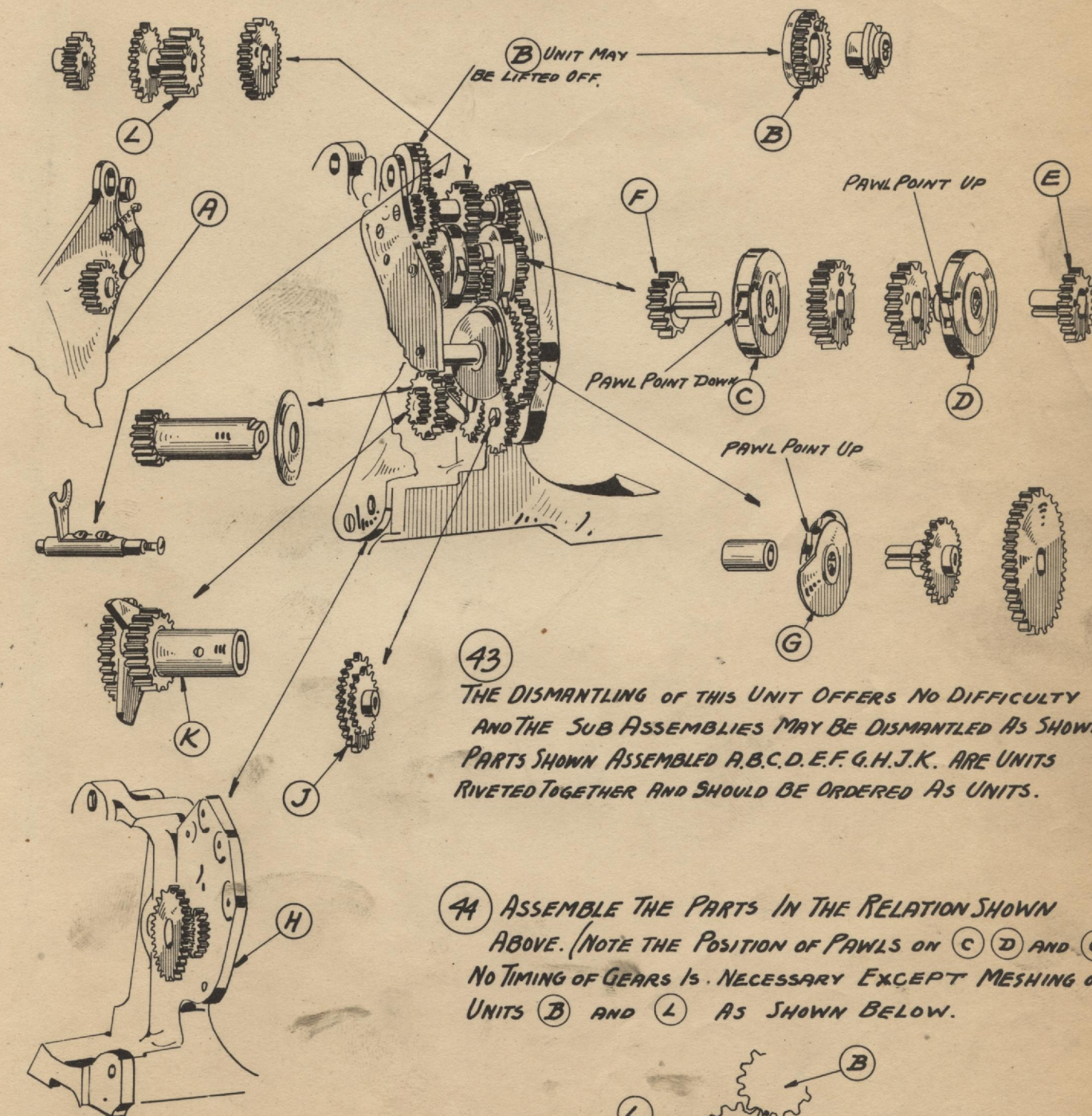
FOR REASSEMBLY AND ADJUSTMENT
NOTES SEE PLATE 19

NOTES ON DISMANTLING AND ASSEMBLING THE AUTOMATIC CARRIAGE CLEAROUT MECHANISM MOTOR BRACKET AND GEAR TRAIN.

41 REMOVE MOTOR FROM ITS BRACKET IN THE USUAL WAY

42 REMOVE THE MOTOR BRACKET AND GEAR TRAIN UNIT COMPLETE

NOTE - CLEARANCE HAS BEEN PROVIDED ON THE GEAR TRAIN PLATE FOR THE PASSAGE OF SPIDER ARM ON RING GEAR.



43

THE DISMANTLING OF THIS UNIT OFFERS NO DIFFICULTY AND THE SUB ASSEMBLIES MAY BE DISMANTLED AS SHOWN. PARTS SHOWN ASSEMBLED A.B.C.D.E.F.G.H.J.K. ARE UNITS RIVETED TOGETHER AND SHOULD BE ORDERED AS UNITS.

44

ASSEMBLE THE PARTS IN THE RELATION SHOWN ABOVE. (NOTE THE POSITION OF PAWLS ON C D AND G). NO TIMING OF GEARS IS NECESSARY EXCEPT MESHING OF UNITS B AND L AS SHOWN BELOW.

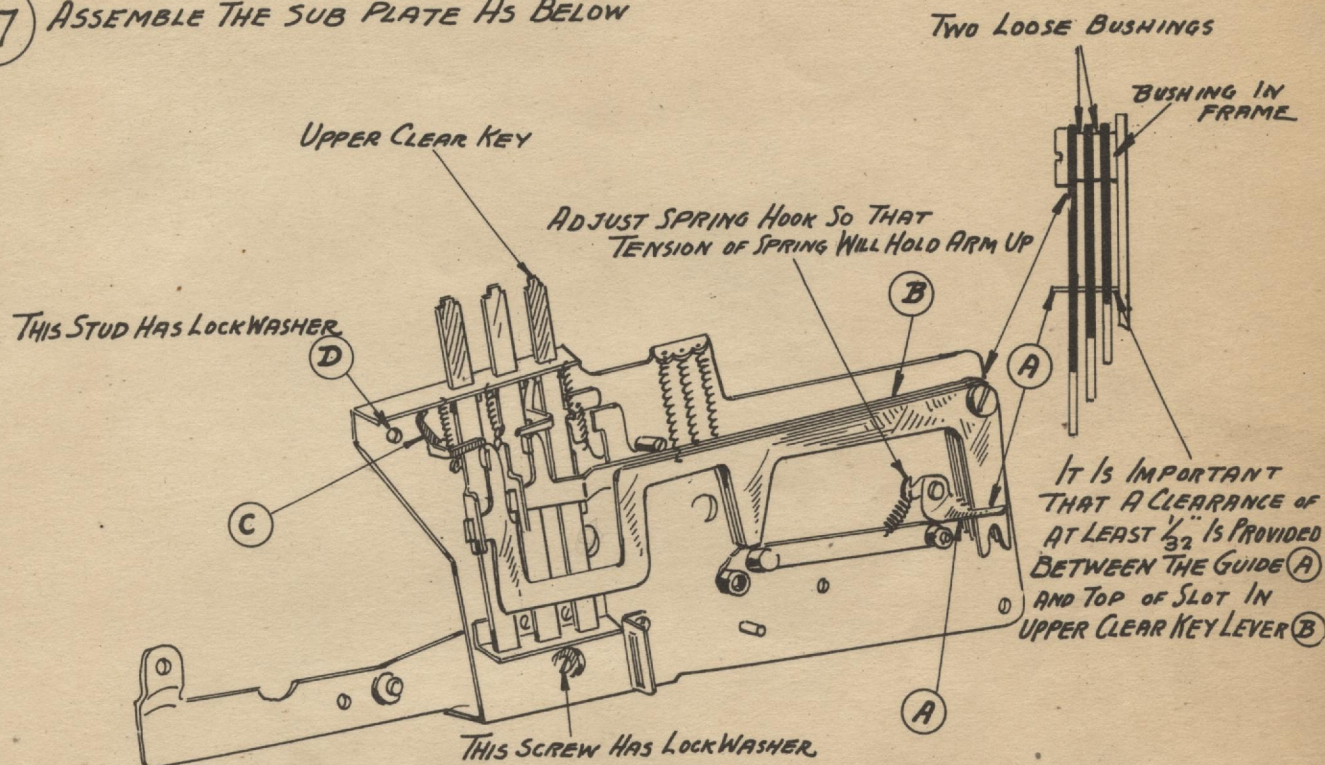


W.M.M.

- 45 ASSEMBLE THE MOTOR BRACKET AND GEAR TRAIN COMPLETE (INCLUDING GUIDE BLANK FOR CLUTCH YOKE) NOTE; CLEARANCE HAS BEEN PROVIDED ON THE GEAR TRAIN PLATE FOR THE PASSAGE OF SPIDER ARM ON RING GEAR.

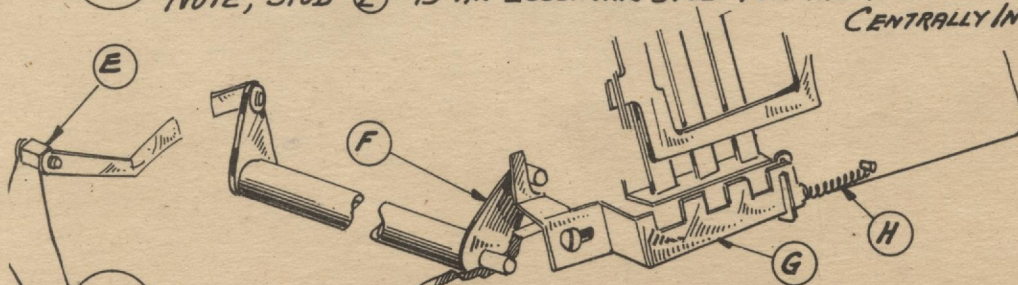
- 46 ASSEMBLE MOTOR TO BRACKET

- 47 ASSEMBLE THE SUB PLATE AS BELOW



- 48 ASSEMBLE THE SUB PLATE TO R.H. SIDE FRAME (BE CAREFUL NOT TO BIND THE LOCK PAWL (C) WHEN ASSEMBLING THE THREADED STUD IN HOLE (D). DO NOT FORGET LOCKWASHERS.

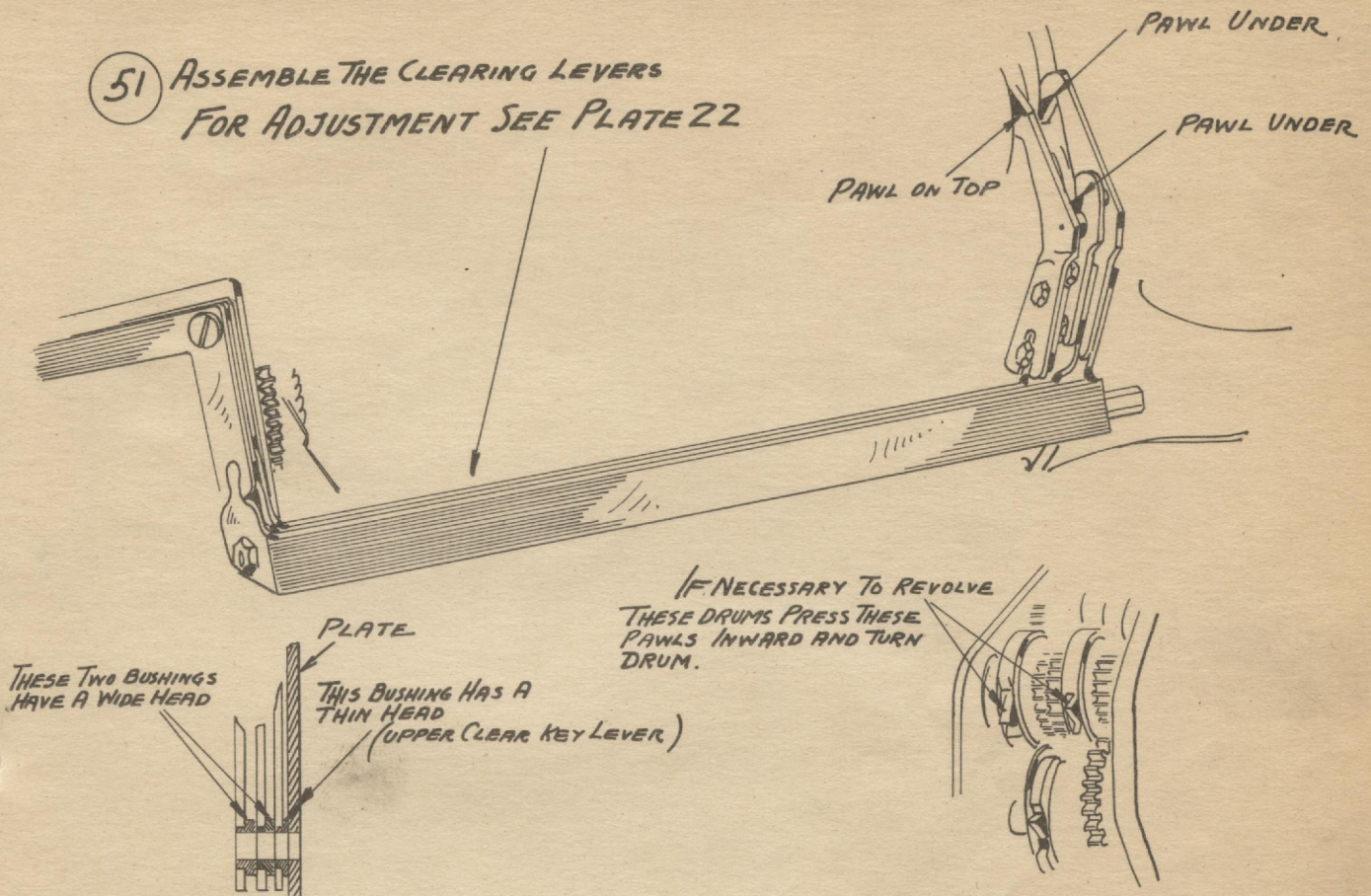
- 49 ASSEMBLE LOCK BLANK (G) AS SHOWN. HOOK UP SPRING (H)
NOTE; STUD (E) IS AN ECCENTRIC STUD FOR THE PURPOSE OF ADJUSTING THE LOCK BLANK (G) CENTRALLY IN RELATION TO THE CLEAR KEYS



- 50 ASSEMBLE THE 'STOP AND START' SWITCH.

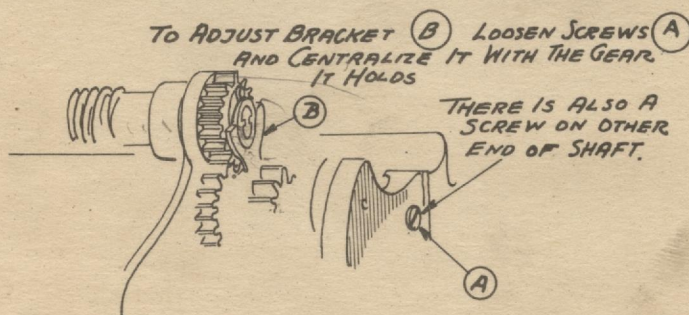
NOTES ON ASSEMBLING THE AUTOMATIC CARRIAGE CLEAR OUT MECHANISM

- (51) ASSEMBLE THE CLEARING LEVERS
FOR ADJUSTMENT SEE PLATE 22

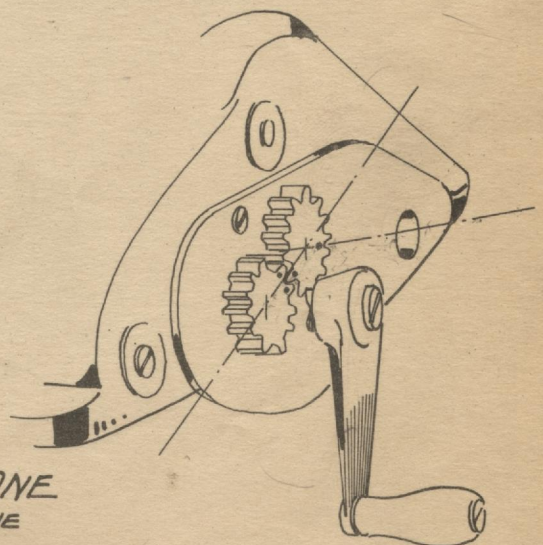


IT IS GOOD PRACTICE TO PLACE THE CLUTCHES IN THE ABOVE POSITIONS BEFORE ASSEMBLING THE CLEARING LEVERS

DO NOT OPERATE MACHINE WITHOUT THE HINGE ROD IN PLACE

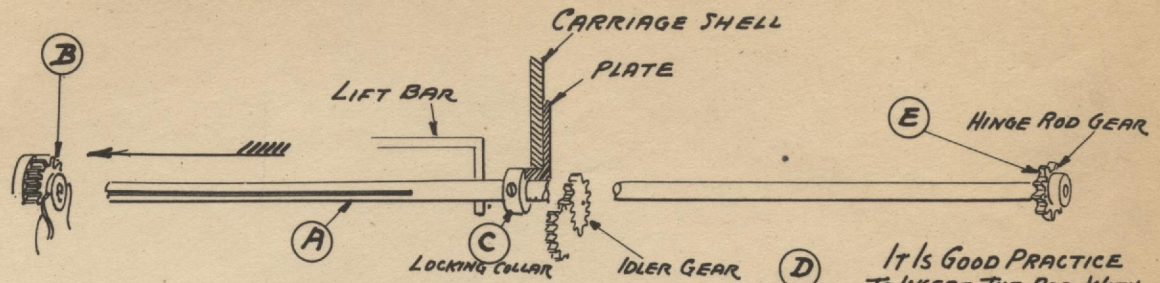


- (52) TIME THE GEARS AT R.H. END OF CARRIAGE AS SHOWN. THIS IS DONE BY INSERTING THE SPECIAL CRANK HANDLE AND TURNING THE MECHANISM IN ONE DIRECTION UNTIL THE TIMING MARKS ARE IN THE EXACT LOCATION SHOWN. THIS TIMING MUST NOT BE DISTURBED.



NOTES ON REASSEMBLING CARRIAGE AND KEY BOARD

53 ASSEMBLING CARRIAGE

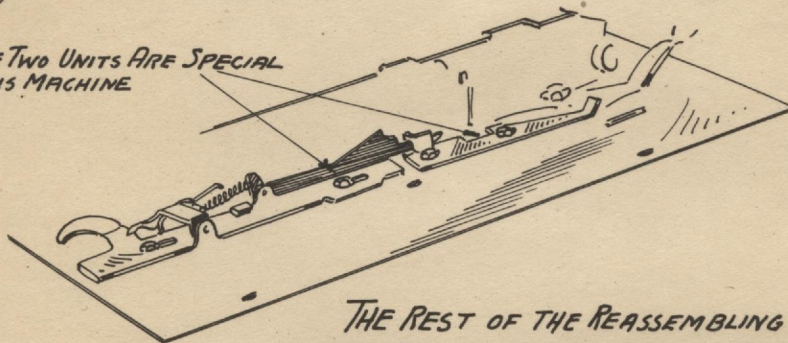


- 54 INSERT HINGE ROD (A) IN R.H. BEARING, PLACE LOCKING COLLAR (C) UPON IT. PUSH IT THROUGH IN DIRECTION OF ARROW WITHOUT TURNING IT. ENTERING (B) CAREFULLY SO AS NOT TO DISTURB THE TIMING. MATCH TIMING MARKS OF GEARS (D) AND (E) TIGHTEN SCREW IN (C) ALLOWING ABOUT $\frac{1}{4}$ " END PLAY IN HINGE ROD

IT IS GOOD PRACTICE TO INSERT THE ROD WITH THE TIMING MARK IN LINE WITH THE MATCHING MARK ON THE IDLER GEAR.

- 55 ASSEMBLE THE GEAR CASE TO THE CARRIAGE WITH SPECIAL SCREWS

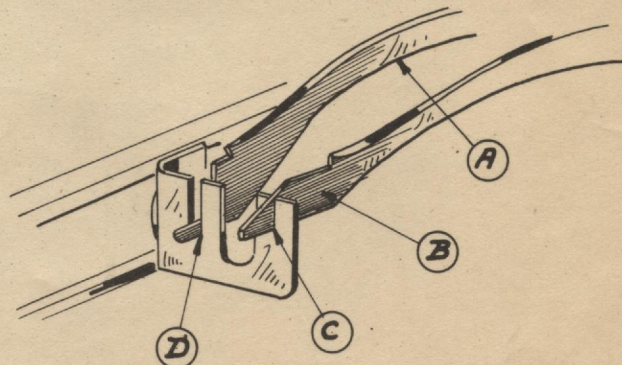
THESE TWO UNITS ARE SPECIAL IN THIS MACHINE



- 56 IF THESE PARTS HAVE BEEN DISMANTLED, ASSEMBLE THEM AS SHOWN

THE REST OF THE REASSEMBLING OPERATIONS MAY BE PERFORMED BY SIMPLY REVERSING THE PROCEDURE OF OPERATIONS - VIZ (10 9 8 7 6 5 4 3 2 1). AS TO OPERATIONS #7 AND #1 SEE NOTES BELOW.

#7 BEFORE REASSEMBLING THE KEY BOARD TO THE MACHINE, BE SURE THAT THE ARM (A) IS IN SLOT (D) AND (B) IS IN (C)

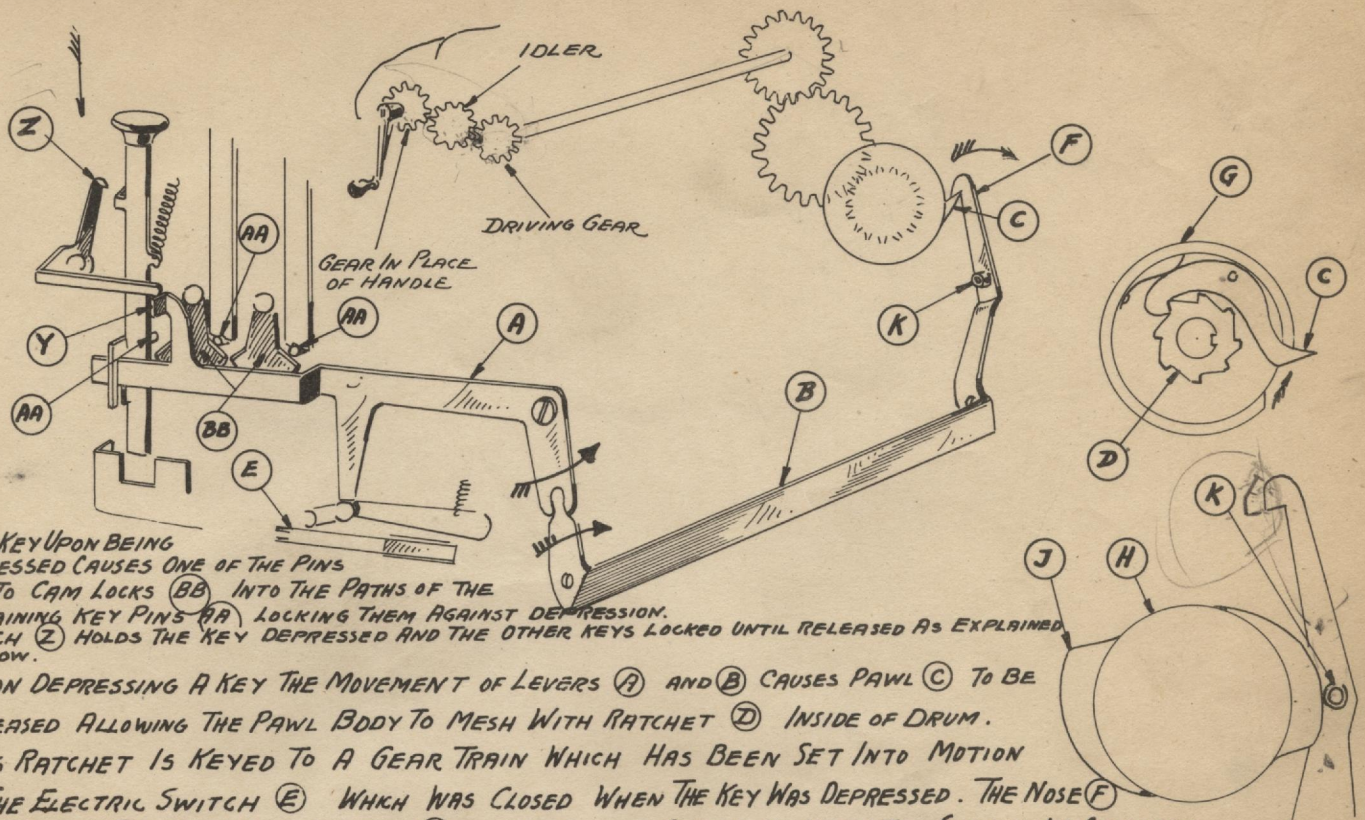


#1

IMPORTANT

DO NOT MOUNT THE THREE CARRIAGE CLEAR OUT KEY TOPS UPON THE KEY STEMS UNTIL YOU HAVE SHUT OFF THE POWER AND DEPRESSED THE + BAR: THIS SERVES TO LOCK THE CLEAR OUT KEY STEMS. IF THIS IS NOT DONE THE PAWLS (T) SHOWN ON PLATE 22 WILL BE DISTURBED AND CASE WILL HAVE TO BE REMOVED TO GAIN ACCESS FOR READJUSTMENT.

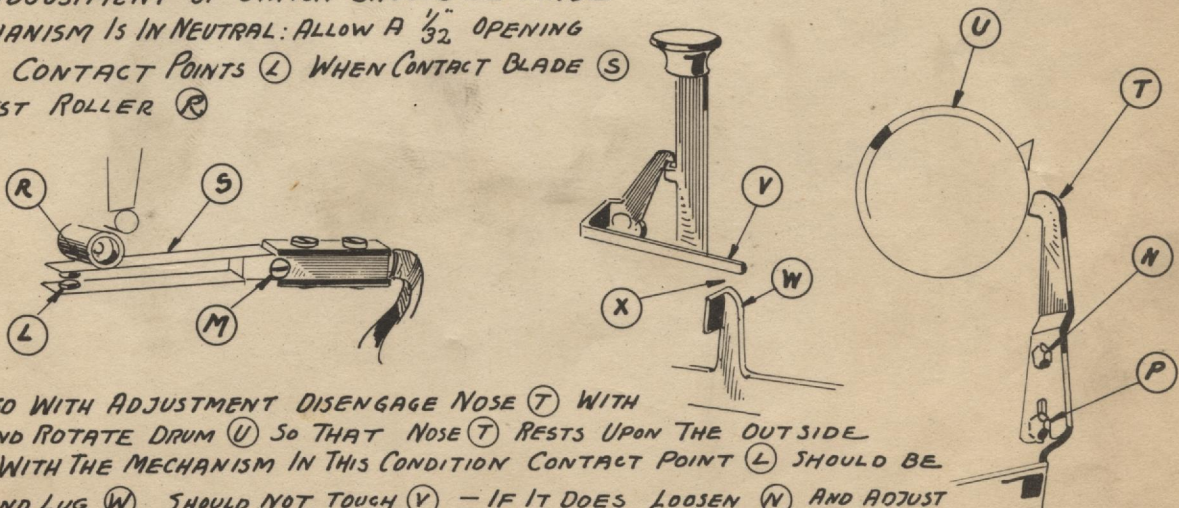
FUNCTION AND ADJUSTMENT OF THE AUTOMATIC CARRIAGE CLEAR OUT MECHANISM.



ANY KEY UPON BEING DEPRESSED CAUSES ONE OF THE PINS (AA) TO CAM LOCKS (BB) INTO THE PATHS OF THE REMAINING KEY PINS (AA) LOCKING THEM AGAINST DEPRESSION. LATCH (Z) HOLDS THE KEY DEPRESSED AND THE OTHER KEYS LOCKED UNTIL RELEASED AS EXPLAINED BELOW.

UPON DEPRESSING A KEY THE MOVEMENT OF LEVERS (A) AND (B) CAUSES PAWL (C) TO BE RELEASED ALLOWING THE PAWL BODY TO MESH WITH RATCHET (D) INSIDE OF DRUM. THIS RATCHET IS KEYED TO A GEAR TRAIN WHICH HAS BEEN SET INTO MOTION BY THE ELECTRIC SWITCH (E) WHICH WAS CLOSED WHEN THE KEY WAS DEPRESSED. THE NOSE (F) OF THE LEVER (B) RIDES UPON SURFACE (G) OF DRUM AND SERVES TO KEEP THE SWITCH IN CONTACT UNTIL REVOLUTION IS COMPLETE; WHEN THIS HAPPENS LUG (Y) UNLATCHES POINT (Z) RELEASING KEY AND UNLOCKING OTHER KEYS. THE DEPRESSION OF THE CENTER KEY PUTS IN OPERATION DRUM (H) WHICH HAS TWO CAMS (J) WHICH LIFE OUT ALTERNATLY THE NOSES (F) OF THE OTHER TWO KEY MECHANISMS BY MEANS OF ROLLERS (K).

A TRIAL ADJUSTMENT OF SWITCH SHOULD BE MADE WHEN MECHANISM IS IN NEUTRAL: ALLOW A $\frac{1}{32}$ " OPENING BETWEEN CONTACT POINTS (L) WHEN CONTACT BLADE (S) IS AGAINST ROLLER (R).

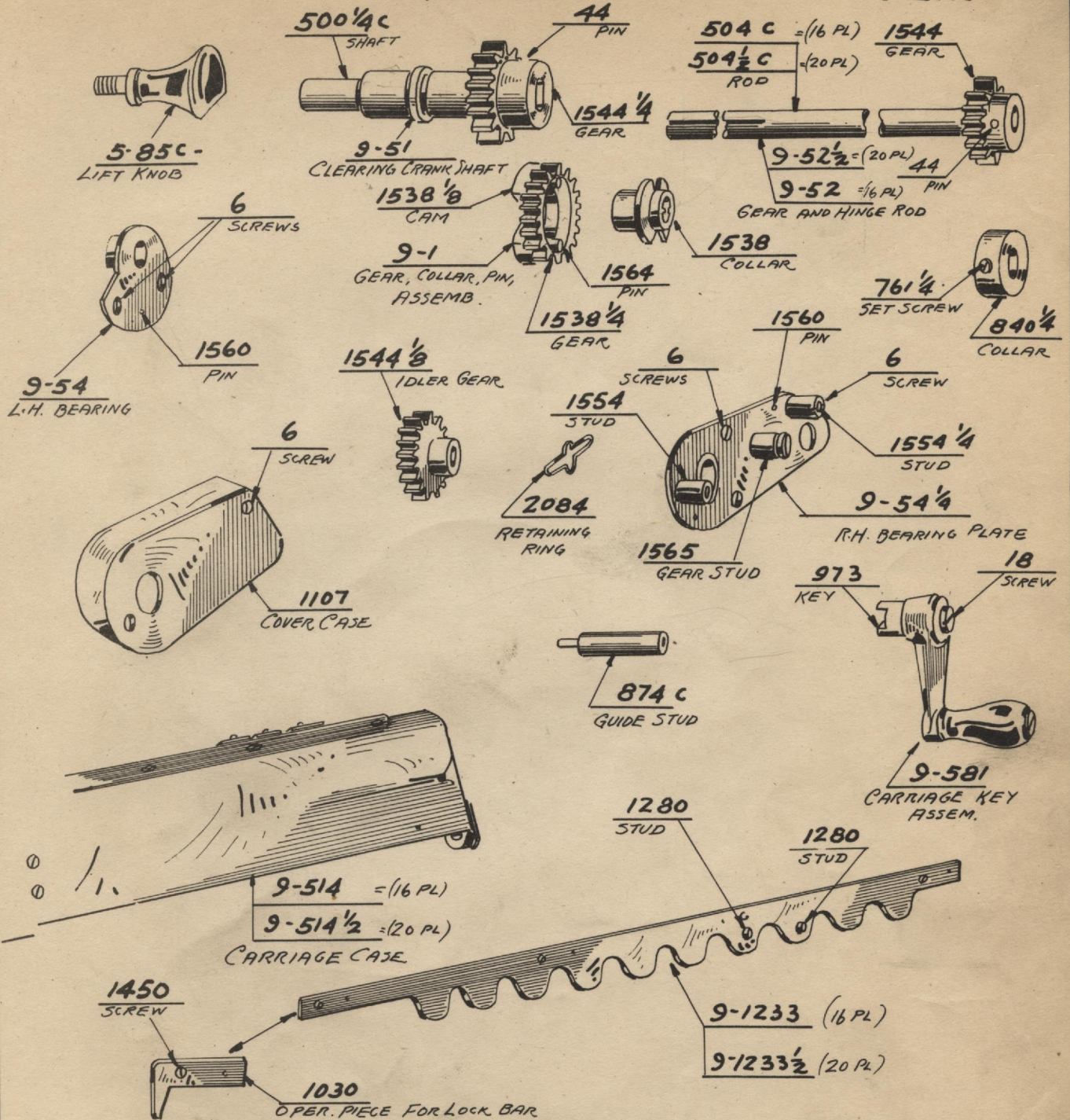


TO PROCEED WITH ADJUSTMENT DISENGAGE NOSE (T) WITH FINGERS AND ROTATE DRUM (U) SO THAT NOSE (T) RESTS UPON THE OUTSIDE OF DRUM. WITH THE MECHANISM IN THIS CONDITION CONTACT POINT (L) SHOULD BE CLOSED AND LUG (W) SHOULD NOT TOUCH (Y) - IF IT DOES LOOSEN (N) AND ADJUST ECCENTRIC STUD (P) UNTIL ABOUT $\frac{1}{16}$ " CLEARANCE IS PRODUCED AT (X) THIS ADJUSTMENT MAY HAVE EFFECTED THE TRIAL ADJUSTMENT OF THE SWITCH; WHICH SHOULD STILL BE CLOSED. RETURN DRUM (U) TO NEUTRAL, PAWL (T) WILL DROP INTO PLACE: SWITCH SHOULD NOW BE OPEN. MAKE THE SAME ADJUSTMENTS TO EACH OF THE KEY MECHANISMS.

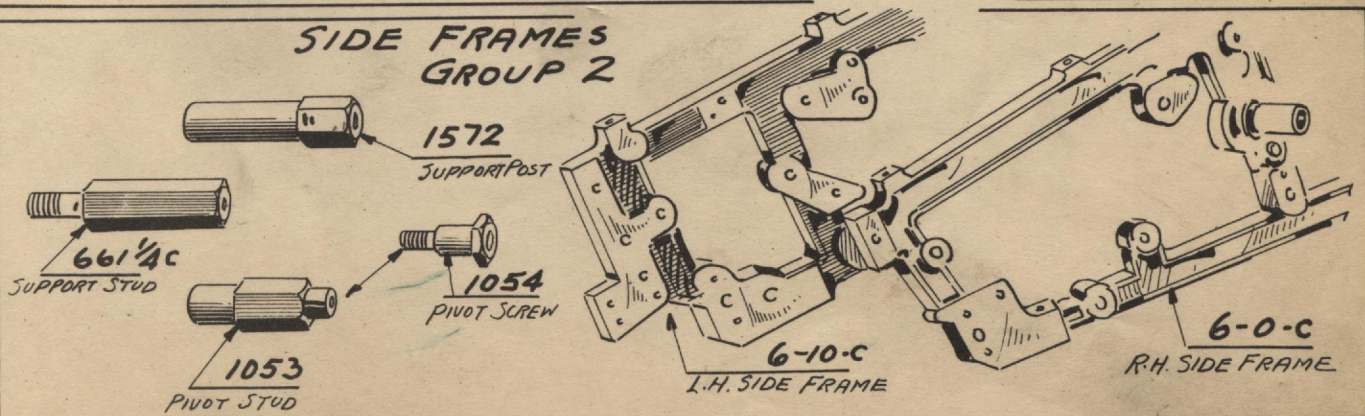
PARTS AND ASSEMBLIES KASC MODEL

CARRIAGE - GROUP 1

PLATE 23

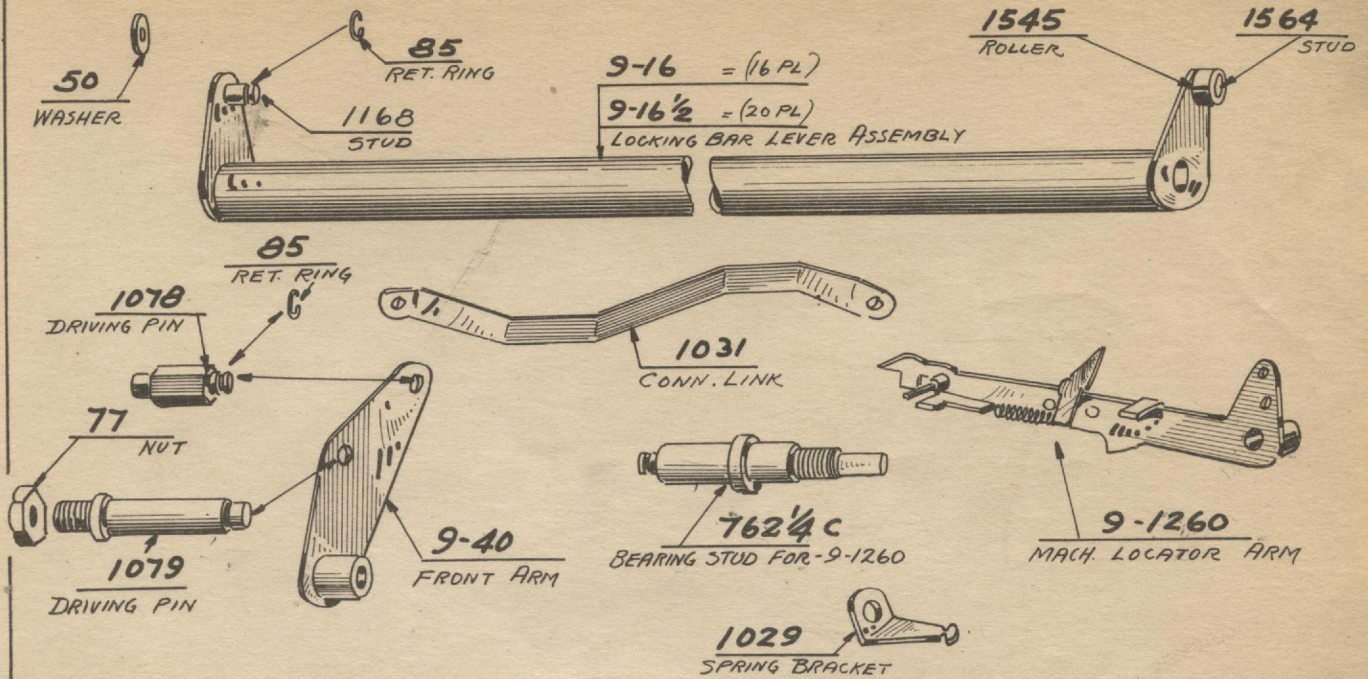


SIDE FRAMES GROUP 2

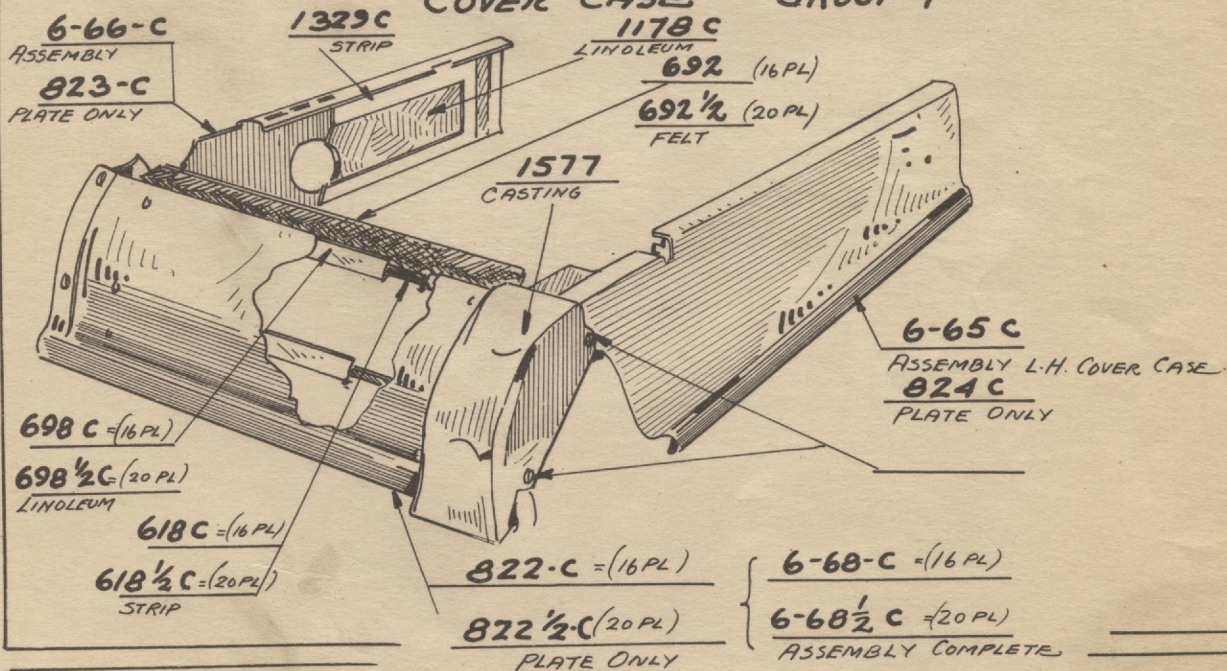


LOCKING BAR LEVER PARTS-GROUP 3

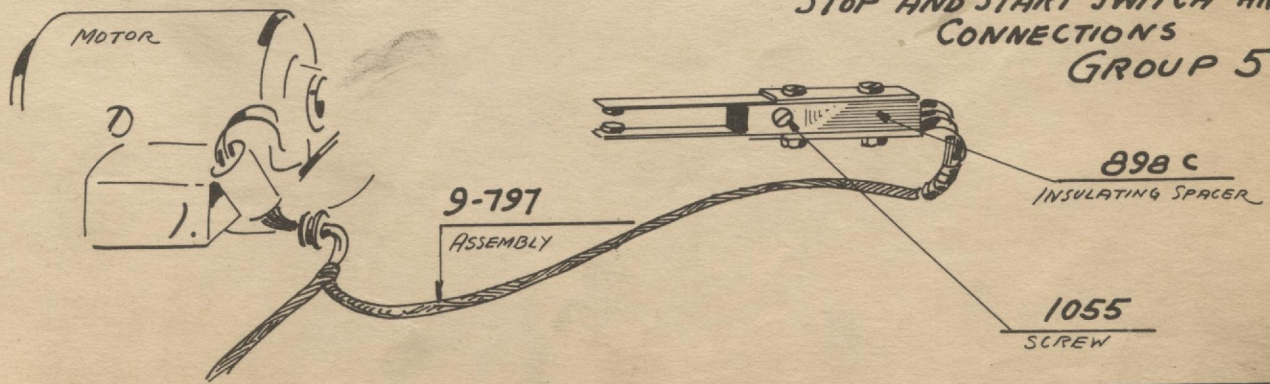
PLATE 24



COVER CASE - GROUP 4



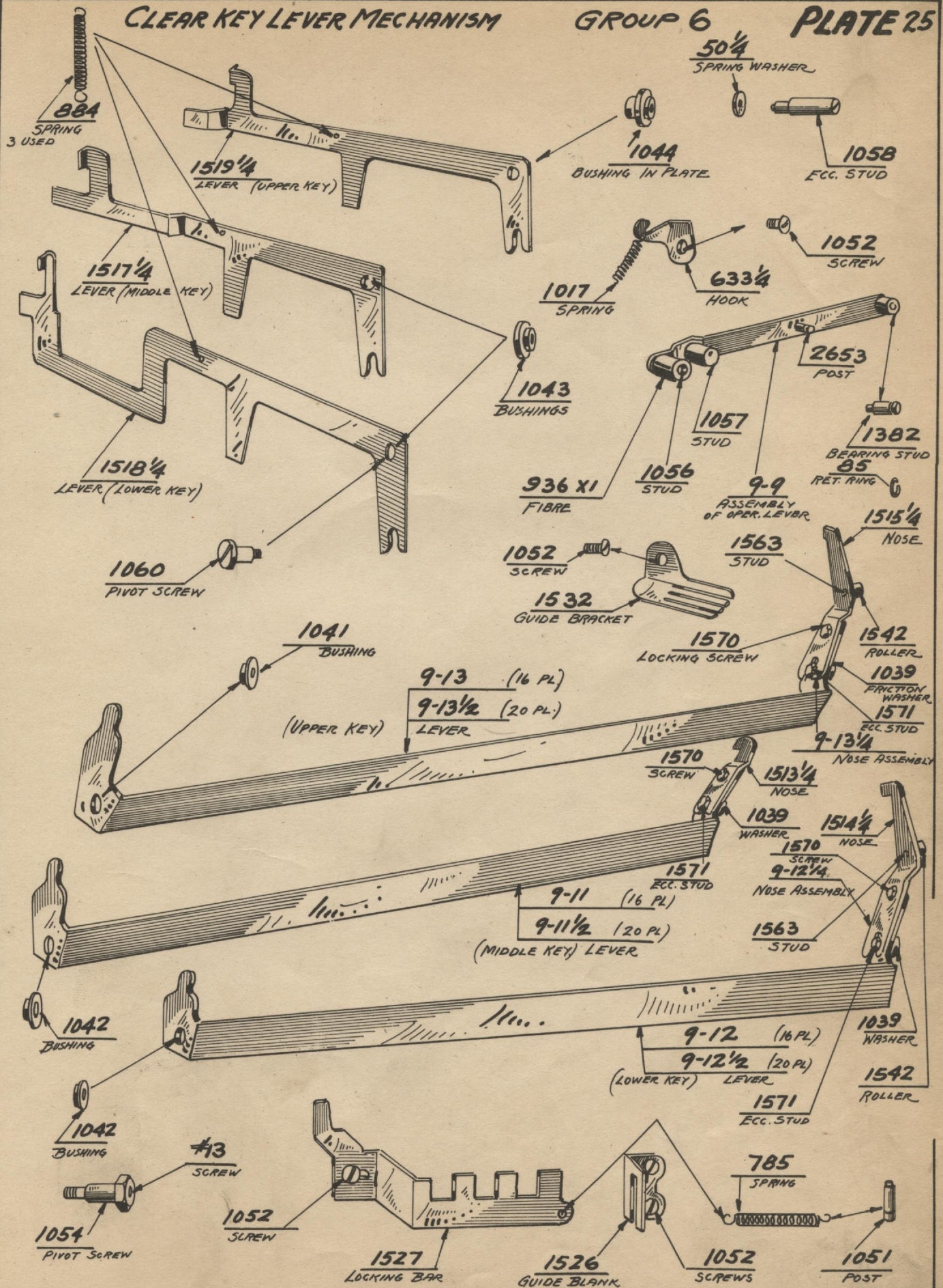
STOP AND START SWITCH AND CONNECTIONS GROUP 5



CLEAR KEY LEVER MECHANISM

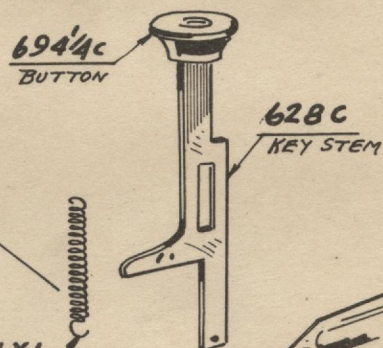
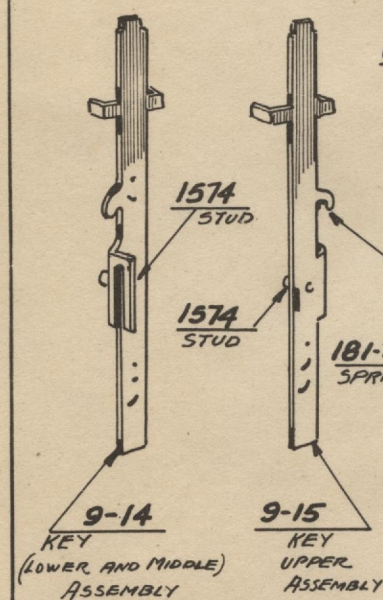
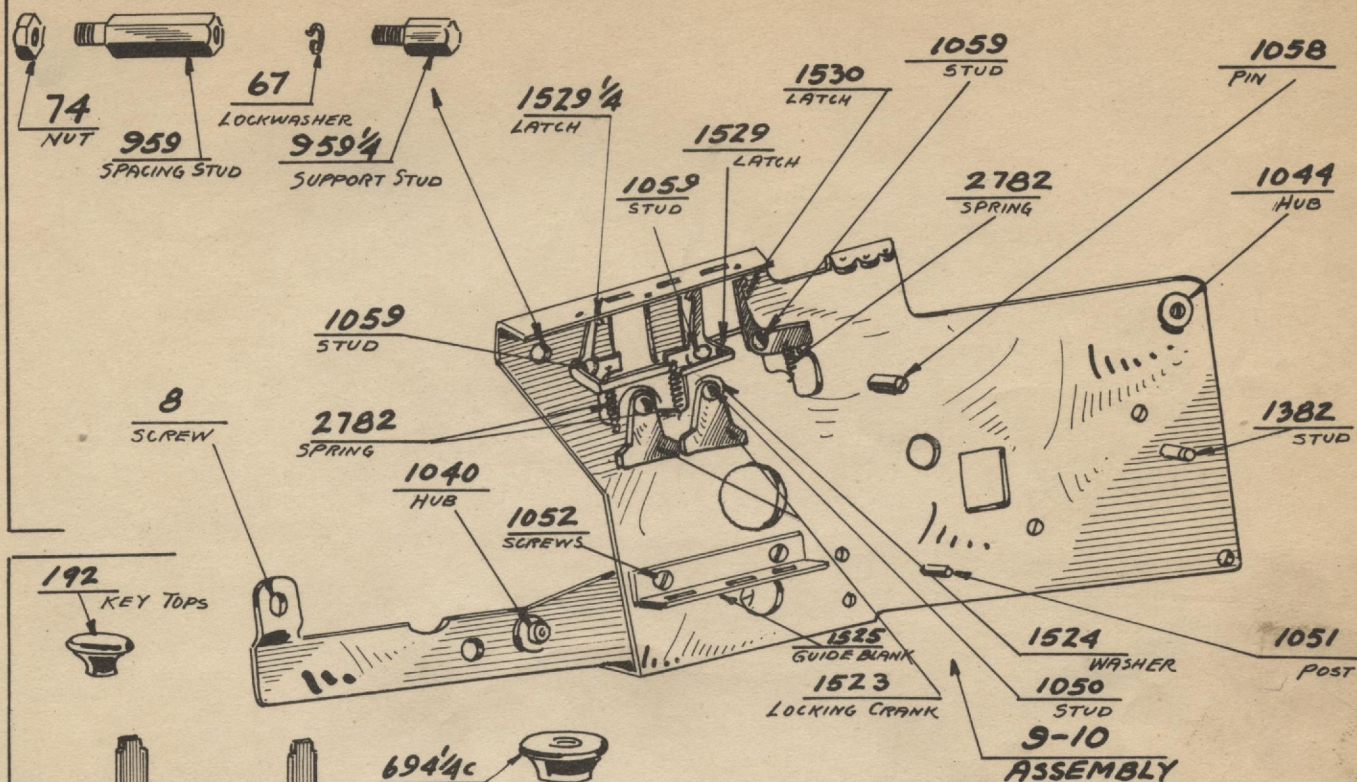
GROUP 6

PLATE 25



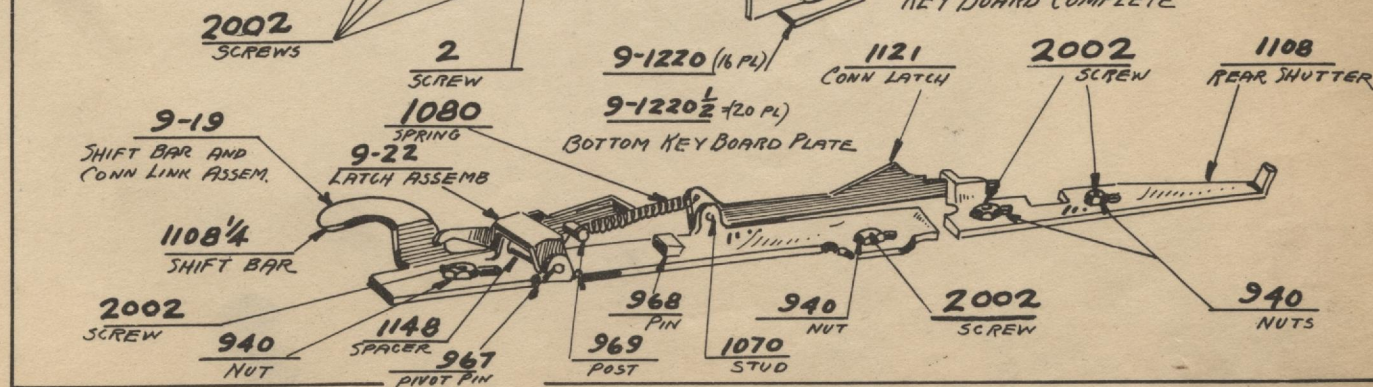
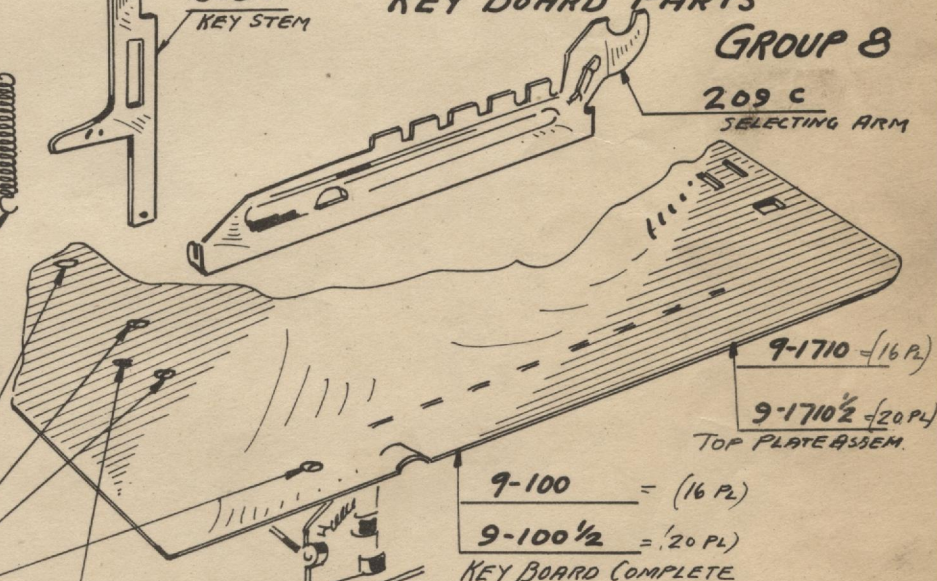
CLEAR KEY LEVER MECHANISM - GROUP 7

PLATE 26

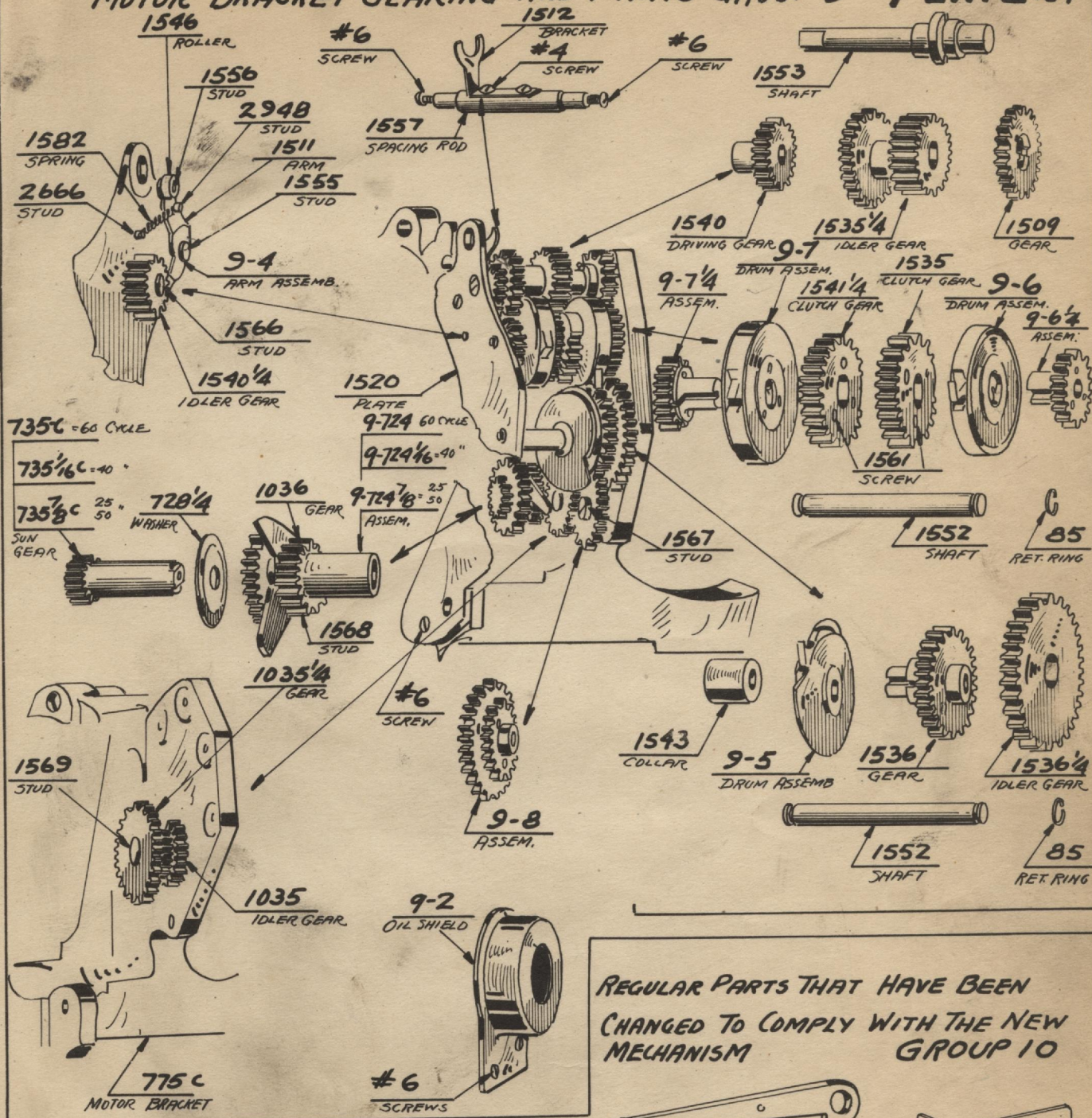


KEY BOARD PARTS GROUP 8

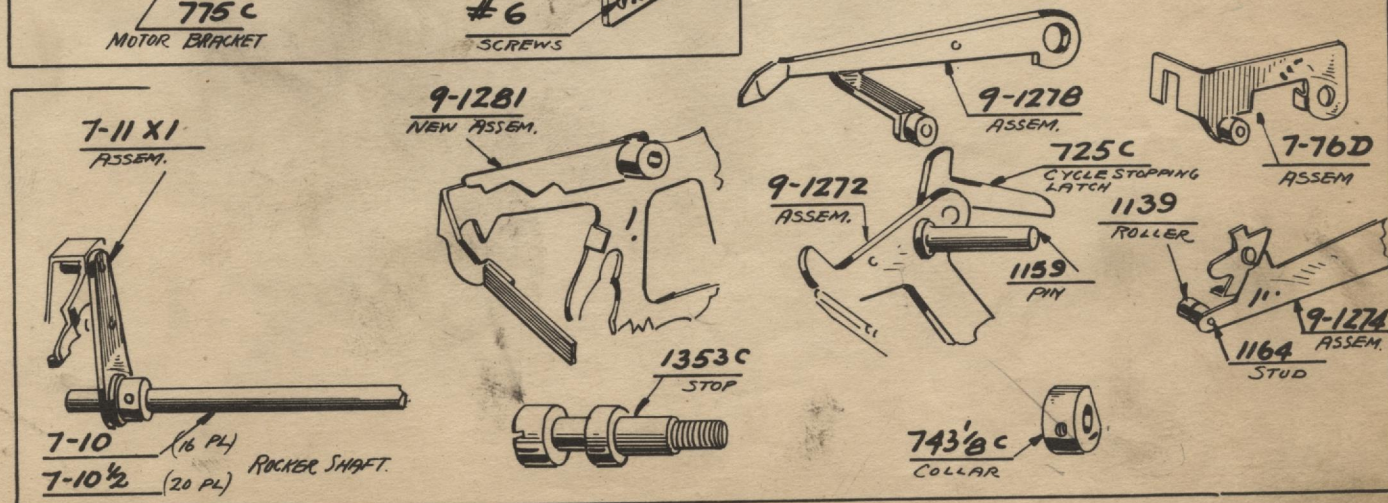
209 C SELECTING ARM



MOTOR BRACKET GEARING AND PARTS GROUP 9 PLATE 27

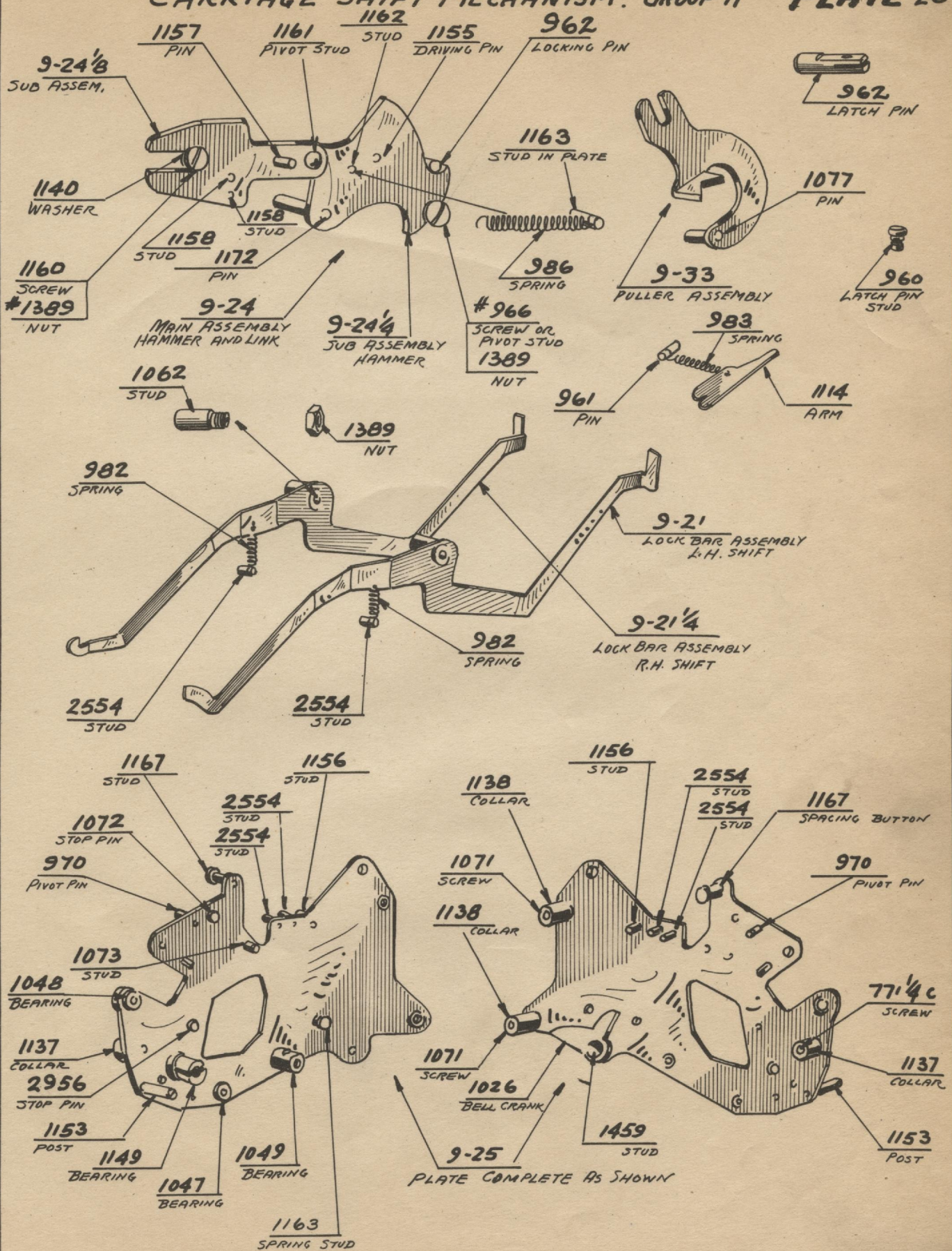


REGULAR PARTS THAT HAVE BEEN
CHANGED TO COMPLY WITH THE NEW
MECHANISM GROUP 10



CARRIAGE SHIFT MECHANISM. GROUP II

PLATE 28



CARRIAGE SHIFT MECHANISM CONTINUED

GROUP II

PLATE 29

